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1963
Annual
Report

The Babcock & Wilcox Company

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Our 96th Year of Helping Industry Serve America

The Babcock & Wilcox Company Incorporated in 1881 from a partnership formed in 1867.

Babcock & Wilcox and its subsidiaries are major producers of capital goods, including steam generating equipment, nuclear systems and components, cleaning systems for heat transfer surfaces, meters and controls, systems for process automation, automated production machinery, steel tubular products and refractories.

Directors

A. G. PRATT, Chairman
W. O. BAKER
J. P. CRAVEN
WALTHER H. FELDMANN
J. ROY GORDON
C. W. MIDDLETON
M. NIELSEN
STODDARD M. STEVENS
W. J. THOMAS
B. A. TOMPKINS
JOHN C. TRAPHAGEN

Officers

M. NIELSEN, President
J. S. ANDERSON, Vice President and General Manager
R. A. BARR, Vice President
R. J. CANTWELL, Vice President and Comptroller
CARL CLAUS, Vice President
J. P. CRAVEN, Vice President
A. T. FRAGOMEN, Vice President
R. H. HARRISON, Vice President
J. D. HITCH JR., Vice President
G. W. KESSLER, Vice President
S. T. MACKENZIE, Vice President
W. H. ROWAND, Vice President
A. P. TABER, Vice President
W. J. THOMAS, Vice President
W. P. CATTERSON, Treasurer
MARTIN VICTOR, Secretary
O. R. CARPENTER, Assistant Vice President

General Offices	161 East 42nd Street, New York, N.Y. 10017
Stock Transfer Agent	BANKERS TRUST COMPANY, 16 Wall Street, New York, N.Y. 10015
Registrar	THE BANK OF NEW YORK, 48 Wall Street, New York, N.Y. 10015
General Counsel	SULLIVAN & CROMWELL, 48 Wall Street, New York, N.Y. 10005
Auditors	PRICE WATERHOUSE & CO., 60 Broad Street, New York, N.Y. 10004

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Eighty-Third

The Babcock & Wilcox Company Annual Report 1963

for the year ended December 31, 1963

Notice to Stockholders

The Annual Meeting of Stockholders will be held at 10 A.M., Wednesday, April 22, 1964, in the Biltmore Hotel, New York City. A formal notice of the meeting with a proxy statement and form of proxy will be mailed to each stockholder March 16, when management will request proxies.

1963 Highlights

	1963	1962
TOTALS		
Orders received	$398,990,000	$348,907,000
Unfilled orders	372,666,000	351,360,000
Sales (on percentage of completion method for long-term contracts)	377,684,000	330,574,000
Income before income taxes and minority interest	46,266,000	44,110,000
U.S. and foreign taxes on income	24,240,000	23,000,000
Net income for the year	21,747,000	20,860,000
Cash dividends declared	10,480,000	9,759,000
Expenditures for property, plant and equipment	23,101,000	25,662,000
Depreciation and amortization	11,227,000	10,335,000
Payrolls and employee benefits	159,372,000	144,894,000
Average number of employees during year	21,300	20,000
Number of stockholders at year end	15,841	16,297
Number of shares issued at year end	6,183,313	6,183,313
PER SHARE ISSUED*		
Net income for the year	$ 3.52	$ 3.37
Cash dividends declared	1.72	1.60
Stockholders' equity	34.85	33.03

*Based on shares issued, including shares held in the Treasury for the Stock Option Plan.

The President's Letter

To the Stockholders of The Babcock & Wilcox Company:

Income and shipments in 1963 reached new highs for the Company.

Earnings were $3.52 per share on shipments of $377,684,000 as compared with $3.37 per share earned in 1962 on shipments of $330,574,000.

The previous high year for shipments was 1957 when earnings, exclusive of extraordinary gain, were equivalent to $2.30 per share on shipments of $366,081,000.

The improvement between 1957 and 1963 is significant because it took place during a period when prices in the industries of which we are a part were under constant downward pressure while at the same time labor rates and fringe benefits were steadily increasing.

This performance was made possible by the continuous effort of people at all levels and in all parts of the organization to reduce costs and improve profits.

Our Company has been strengthened by the largest capital investment program in its history. During the years 1957 through 1963 we have invested an average of approximately $15,000,000 per year largely directed toward modernization, integration, and new facilities.

Our accelerated research and development activities have also contributed to improvement of the Company's position. Expenditures for this purpose are now in excess of $10,000,000 per year. They are aimed at cutting costs through better designs and manufacturing methods and at the development of new and improved products and processes in all of our lines.

The outlook for our Company continues to be good. As noted elsewhere in this report, our diversified divisions and subsidiaries supply goods and services to many basic industries which will experience significant growth. Through our policy of expanding research and development, of searching out new areas for capital investment, and of continuing our profit improvement program, we expect to maintain our position of leadership.

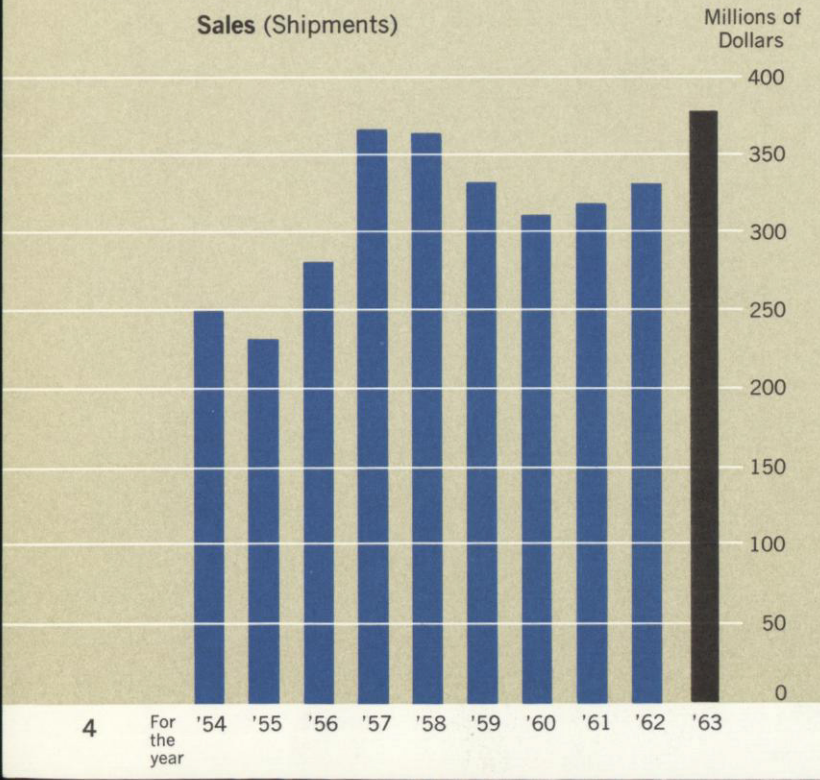
M. Nielsen.

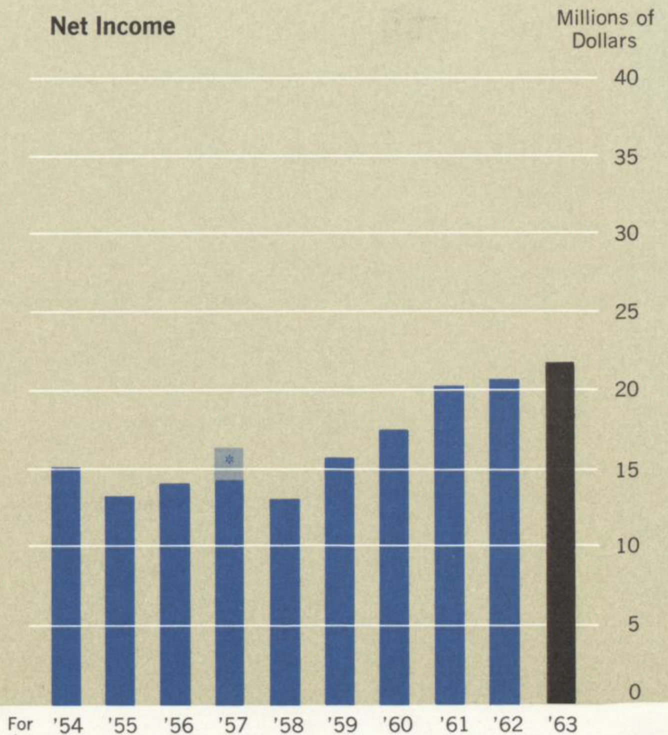
President

February 27, 1964

1963 Income and Where it Went

Our income was		
From products shipped to customers	$377,684,000	
From investment income	2,035,000	
Total	**$379,719,000**	
We paid out and provided		
For materials and services purchased	$159,770,000	42.1%
For wages, salaries and employee benefits	159,372,000	42.0
For taxes	26,490,000	7.0
For depreciation of plant and equipment	11,227,000	2.9
For interest on money borrowed	834,000	0.2
For minority interest in subsidiary companies	279,000	0.1
For cash dividends to stockholders	10,480,000	2.8
For future growth (retained earnings)	11,267,000	2.9
Total	**$379,719,000**	**100.0%**





*Includes $2,250,000 extraordinary gain

Financial Review

The figures in this report result from a consolidation of the accounts of the Company and its subsidiaries —Bailey Meter Company, Diamond Power Specialty Corporation, and A. M. Lockett & Co., Limited.

SALES (SHIPMENTS) AND INCOME

	1963	*1962*
Sales (shipments)	$377,684,000	$330,574,000
Income from operations	$ 45,065,000	$ 42,994,000
Net income	$ 21,747,000	$ 20,860,000
Shares issued	6,183,313	6,183,313
Earned per share	$ 3.52	$ 3.37

There was a greater increase in shipments than in earnings principally because of product mix and higher expenditures for research and development. The growth in shipments was largely represented by steam generating equipment and atomic energy components.

The increase in depreciation provision arising from application for book and tax purposes of the Treasury Department's guidelines and rules resulted in a decrease of $.07 per share in net income for the year, the same as in 1962.

A tax incentive credit of $1,195,000 ($832,000 in 1962), as determined under the Revenue Act of 1962, resulted from the acquisition of new equipment during the year. We have elected to treat this credit in a conservative manner by reflecting it as a proportionate reduction of taxes over the life of the equipment rather than in the year acquired.

DIVIDENDS

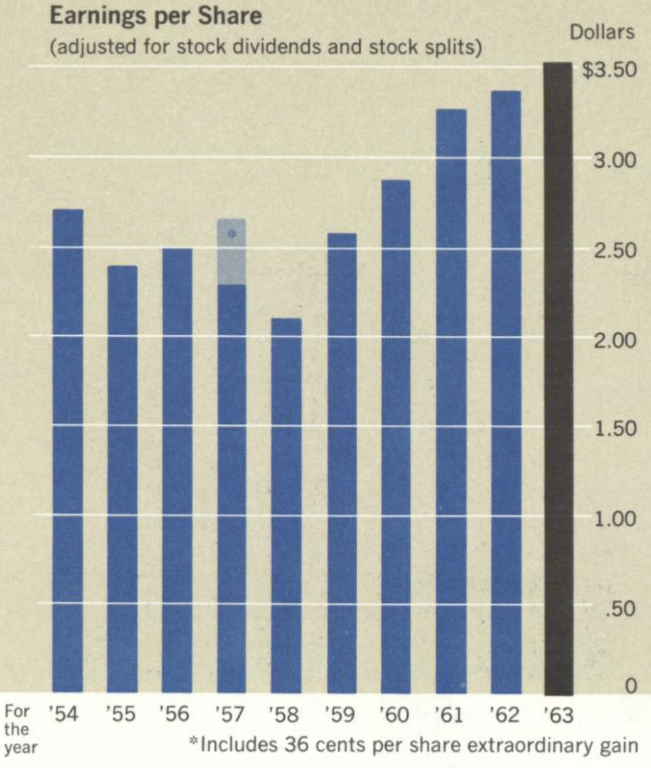
On February 28, 1963 the Board of Directors increased the quarterly dividend from $.40 to $.43 per share. Four such dividends, totaling $1.72 per share, were declared during 1963.

Dividends were paid during 1963 as follows:

Amount Paid	*Date Paid*	*Date of Record*
$ .40	January 2, 1963	December 11, 1962
.43	April 1, 1963	March 11, 1963
.43	July 1, 1963	June 10, 1963
.43	October 1, 1963	September 10, 1963
$1.69 per share total paid		

FINANCIAL POSITION

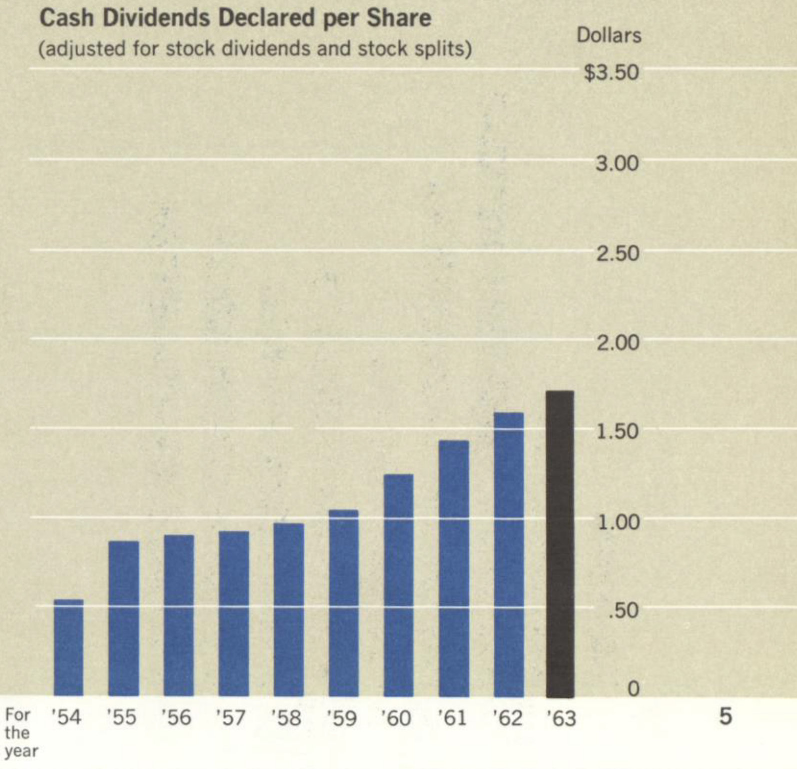
The Company's financial position continues to remain strong. Cash and marketable securities at the year end totaled $33,322,000, down from the prior year's $51,007,000 due principally to capital expenditures and deferred payment terms on steam generating contracts for export. Our projections indicate that there should be sufficient funds to finance the business for the foreseeable future.



Earnings per Share

(adjusted for stock dividends and stock splits)

*Includes 36 cents per share extraordinary gain



Cash Dividends Declared per Share

(adjusted for stock dividends and stock splits)

Financial Review

On June 1, 1963, the Company exercised its option and made another $2,200,000 prepayment on its long-term debt without penalty. As a result of this and previous payments and prepayments, the total debt has been reduced from $32,000,000 in 1959 to $21,000,000. The next mandatory payment is not due until June 1, 1966.

ORDERS AND BACKLOG

Consolidated new orders received during 1963 totaled $398,990,000, compared with $348,907,000 in 1962. Backlog increased from $351,360,000 as of the end of 1962 to $372,666,000 as of the end of 1963. The larger portion of our backlog is for steam generating equipment with shipments extending into 1965 or later.

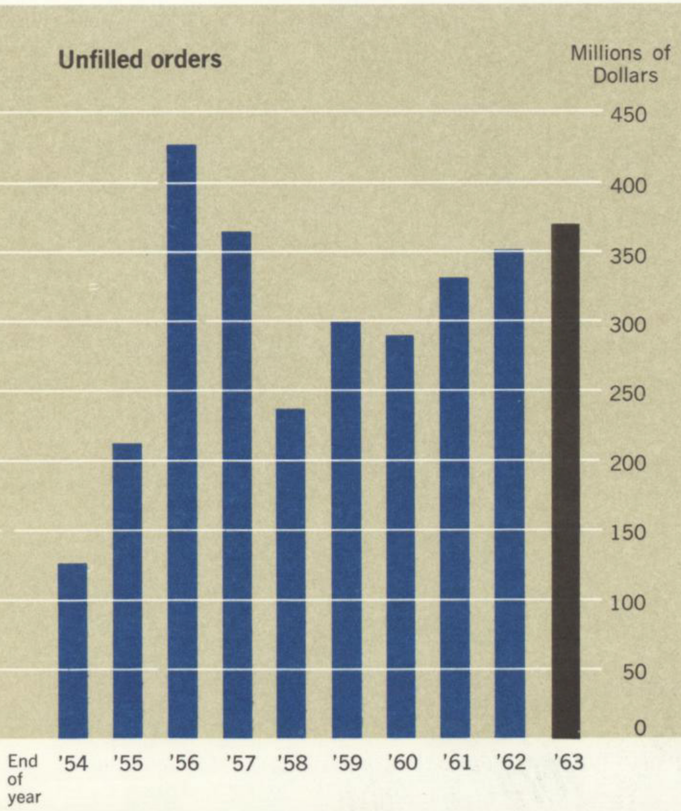
PROPERTY, PLANT AND EQUIPMENT

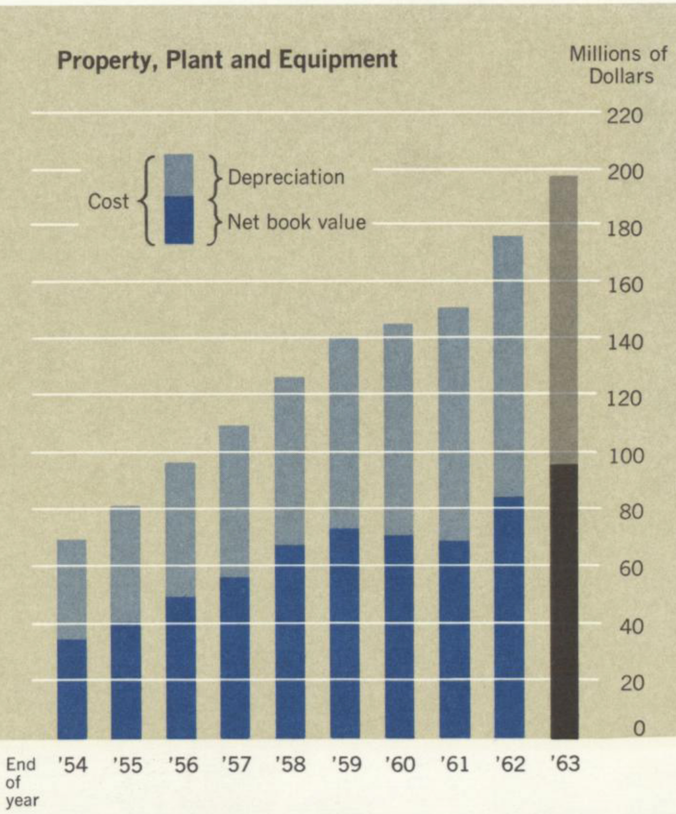
Expenditures of $23,101,000 in 1963 for property, plant and equipment, together with the $25,662,000 spent in 1962, represent the largest program in a two-year period in the history of the Company. All operating divisions and subsidiaries and the Research and Development Division were included in this program. The major expenditures were for steel making facilities and a new rolling mill in the Tubular Products Division; expansion of the new Boiler Division plant in Indiana; acquisition of the W. F. & John Barnes Company, Rockford, Illinois (now operating as a Works of the Boiler Division); a test reactor at the Nuclear Development Laboratories in Lynchburg, Virginia; a new general office and engineering building for Bailey Meter Company in the Cleveland area.

These expenditures are part of the Company's continuing long range program of installing highly efficient machine tools and equipment, integrating its product lines, developing new products, and expanding its production facilities.

EMPLOYEES

The average number of active employees in 1963 was 21,300 compared with an average of 20,000 in 1962. There were 1,216 retired employees receiving pensions at the end of December 1963, an increase of 136 during the year. Payrolls and employee benefits totaled $159,372,000.





A summary of the Company's pension funds established in accordance with formal plans approved by stockholders in 1955, is as follows:

Total assets on January 1, 1963	$27,788,000
Contributions by Company during 1963	5,382,000
Income from pension fund investments during 1963	1,286,000
Less pensions paid during 1963	1,698,000
Total assets on December 31, 1963	$32,758,000

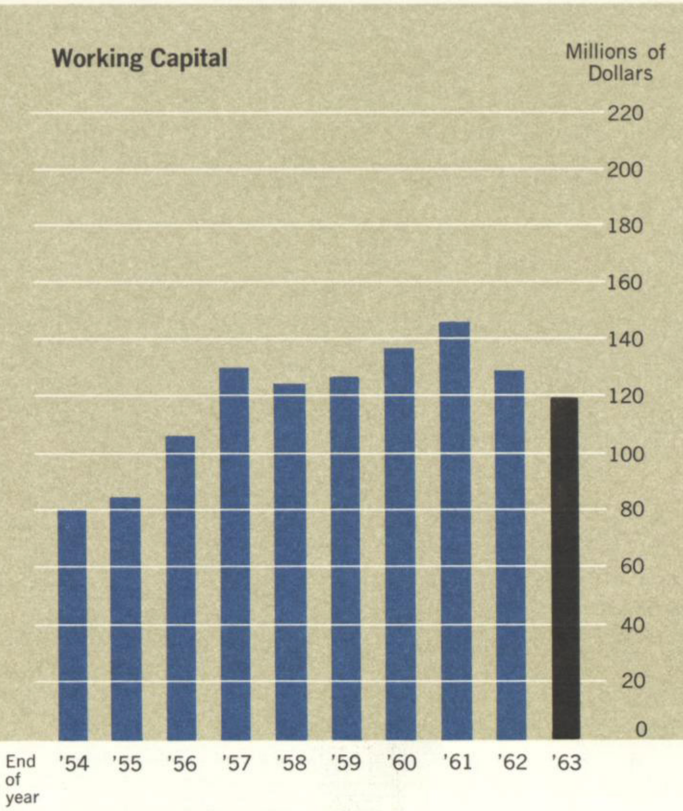
The following is the status of the Company's Stock Option Plan approved by the stockholders in 1958:

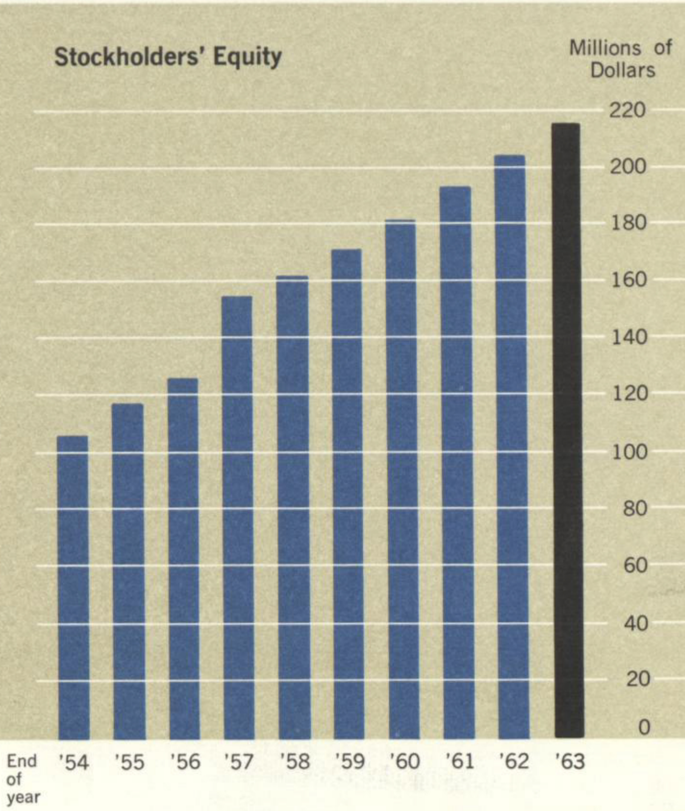
Options were outstanding on January 1, 1963 for	97,464 shares
Options lapsed during 1963 for	1,208 shares
Options were exercised during 1963 for	12,688 shares
Options were outstanding on December 31, 1963 for	83,568 shares

On January 1, 1963 there were 30,694 shares available for the granting of options. No options were granted in 1963 under this Plan which expired on April 1, 1963.

The 1958 Plan required that only previously issued shares be used to meet the stock options granted. The Company has therefore acquired, on the open market, sufficient shares for that purpose. Shares acquired for options outstanding on December 31, 1963 cost $3,097,591. This amount is included in Prepaid Expenses and Other Assets in the Statement of Financial Condition. If all outstanding options are exercised, $3,004,873 will be returned to the Company.

In 1963 the stockholders approved a new Stock Option Plan under which the Board of Directors may grant regular full-time employees of the Company and its subsidiaries options to purchase up to 200,000 shares of the capital stock of the Company with a limit of 5% to any one employee at an option price of not less than 100% of market value on the date the option is granted. Options may be granted at any time on or before April 1, 1968. Either previously issued shares or authorized but unissued shares of the Company's capital stock may be used to meet the options. The Company granted no options under this new Stock Option Plan in 1963.





Consolidated Statement of Financial Condition

At December 31	1963	1962
CURRENT ASSETS		
Cash	$ 13,026,272	$ 9,169,499
Marketable securities, at cost (approximate market)	20,295,622	41,837,004
Accounts receivable	49,213,379	49,725,727
Unbilled shipments and installations, at contract prices	22,630,901	17,849,724
Inventories, at lower of cost or market	93,451,817	87,632,057
Advance payments on contracts	(15,165,500)	(20,142,167)
TOTAL CURRENT ASSETS	183,452,491	186,071,844
CURRENT LIABILITIES		
Accounts payable	17,518,324	14,470,182
Accrued liabilities	21,366,021	20,284,811
Cash dividends payable	2,622,371	2,433,816
Provision for additional costs on contracts	3,662,309	2,794,944
U.S. and foreign income taxes	18,432,306	16,215,472
TOTAL CURRENT LIABILITIES	63,601,331	56,199,225
WORKING CAPITAL	119,851,160	129,872,619
LONG-TERM RECEIVABLES	15,799,323	9,726,822
INVESTMENTS, at cost	2,621,259	868,024
PROPERTY, PLANT AND EQUIPMENT, at cost less accumulated depreciation and amortization: 1963–$103,354,142; 1962–$92,822,344	95,472,554	83,679,429
PREPAID EXPENSES AND OTHER ASSETS (includes cost of shares of the Company's stock acquired for stock options: 1963–83,568 shares; 1962–97,464 shares. See page 7)	4,970,778	4,759,127
PATENTS	1	1
WORKING CAPITAL AND OTHER ASSETS	238,715,075	228,906,022
DEDUCT		
Long-term debt–notes payable (3⅝% and 3⅞%) due in annual installments, June 1, 1966-1974	21,000,000	23,200,000
Minority interest in subsidiary companies	2,217,909	1,475,946
NET ASSETS	$215,497,166	$204,230,076
REPRESENTED BY		
Capital stock, par value $9 per share; authorized 9,000,000 shares; issued 6,183,313 shares (including $26,681,610 excess over par value–capital surplus)	$ 82,331,427	$ 82,331,427
Retained earnings	133,165,739	121,898,649
	$215,497,166	$204,230,076

Consolidated Statement of Income & Retained Earnings

For the Calendar Year	1963	1962
Sales (on percentage of completion method for long-term contracts)	$377,684,063	$330,573,637
Costs and expenses:		
Materials, payrolls, services and taxes other than U. S. and foreign taxes on income	321,391,321	277,244,502
Depreciation of plants and equipment (includes amortization: 1963–$276,005; 1962–$792,221)	11,227,184	10,335,200
	332,618,505	287,579,702
Income from operations	45,065,558	42,993,935
Income from investments and marketable securities	2,034,600	2,068,153
Interest expense	(833,875)	(952,450)
	46,266,283	44,109,638
U. S. and foreign taxes on income	24,240,000	23,000,000
	22,026,283	21,109,638
Income applicable to minority interest	(279,357)	(249,202)
Net income for the year	21,746,926	20,860,436
Cash dividends declared	10,479,836	9,758,838
Remainder added to retained earnings	11,267,090	11,101,598
Retained earnings at beginning of year	121,898,649	110,797,051
Retained earnings at end of year	$133,165,739	$121,898,649

Opinion of Independent Accountants

To the Stockholders and Directors of
The Babcock & Wilcox Company:

In our opinion, the accompanying statements present fairly the consolidated financial position of The Babcock & Wilcox Company and its subsidiaries at December 31, 1963, and the results of their operations for the year, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year. Our examination of these statements was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

PRICE WATERHOUSE & CO.

New York, N. Y., February 26, 1964

Ten-Year Comparison of

Financial Condition

(in thousands of dollars)

At December 31	1963
CURRENT ASSETS	
Cash	$ 13,026
Marketable securities	20,296
Accounts receivable	49,213
Unbilled shipments and installations	22,631
Inventories	93,452
Advance payments on contracts	(15,166)
TOTAL CURRENT ASSETS	183,452
CURRENT LIABILITIES	
Notes payable	
Accounts payable	17,518
Accrued liabilities	21,366
Cash dividends payable	2,622
Provision for additional costs on contracts	3,662
U.S. and foreign income taxes	18,433
TOTAL CURRENT LIABILITIES	63,601
WORKING CAPITAL	119,851
LONG-TERM RECEIVABLES	15,799
INVESTMENTS	2,621
PENSION RESERVE INVESTMENTS	
PROPERTY, PLANT AND EQUIPMENT	95,473
PREPAID EXPENSES AND OTHER ASSETS	4,971
WORKING CAPITAL AND OTHER ASSETS	238,715
DEDUCT	
Long-term debt	21,000
Reserve for pensions prior to funded plan	
Minority interest in subsidiary companies	2,218
NET ASSETS	$215,497
REPRESENTED BY	
Capital including capital surplus	$ 82,332
Stock dividends paid January following year	
Retained earnings	133,165
	$215,497

Ten-Year Comparison of

Property, Plant & Equipment

(in thousands of dollars)

	1963
COST	
At beginning of year	$176,502
Expenditures during year	23,101
Retired or sold during year	(776)
At end of year	198,827
DEPRECIATION AND AMORTIZATION	
At beginning of year	92,823
Charged to operations during year	11,227
Accumulated on property retired or sold during year	(696)
At end of year	103,354
NET BOOK VALUE	$ 95,473

1962	1961	1960	1959	1958	1957	1956	1955	1954
$ 9,169	$ 10,771	$ 12,887	$ 9,531	$ 11,764	$ 12,873	$ 14,578	$ 14,184	$ 20,121
41,837	55,889	48,682	29,987	11,686	4,729	1,999	8,805	7,268
49,726	54,218	53,133	59,726	52,514	45,686	39,394	34,198	39,277
17,850	17,453	15,580	21,688	29,533	20,200	10,161	10,925	17,758
87,632	72,151	66,188	63,357	76,939	104,504	91,486	56,996	40,975
(20,142)	(13,752)	(13,205)	(10,608)	(11,226)	(12,168)	(9,427)	(2,232)	(2,649)
186,072	196,730	183,265	173,681	171,210	175,824	148,191	122,876	122,750
	2,200	2,200						
14,470	9,817	11,192	12,678	12,991	10,838	12,270	9,394	11,413
20,285	17,563	15,911	16,950	15,436	14,922	12,186	9,045	9,002
2,434	2,443	2,135	1,832	1,520	1,472	1,286	1,225	778
2,795	2,000	1,603	2,611	3,913	3,315	1,762	2,803	4,000
16,215	16,183	13,060	12,157	12,312	14,975	13,867	15,109	16,588
56,199	50,206	46,101	46,228	46,172	45,522	41,371	37,576	41,781
129,873	146,524	137,164	127,453	125,038	130,302	106,820	85,300	80,969
9,727								
868	1,044	723	604	604	604	1,600	1,600	1,603
								2,250
83,679	68,406	70,925	73,390	67,867	56,741	49,830	40,657	34,289
4,759	3,930	4,097	3,472	1,890	734	1,058	748	566
228,906	219,904	212,909	204,919	195,399	188,381	159,308	128,305	119,677
23,200	25,400	29,800	32,000	32,000	32,000	32,000	10,000	10,000
								2,250
1,476	1,375	1,372	1,367	1,350	1,261	1,158	1,091	1,049
$204,230	$193,129	$181,737	$171,552	$162,049	$155,120	$126,150	$117,214	$106,378
$ 82,332	$ 82,332	$ 82,332	$ 82,332	$ 80,339	$ 73,338	$ 46,311	$ 38,760	$ 34,260
				1,993	7,000	8,760	7,470	4,500
121,898	110,797	99,405	89,220	79,717	74,782	71,079	70,984	67,618
$204,230	$193,129	$181,737	$171,552	$162,049	$155,120	$126,150	$117,214	$106,378
$151,518	$146,140	$140,587	$127,800	$110,291	$ 97,311	$ 82,215	$ 70,117	$ 67,177
25,662	6,188	6,105	13,183	18,162	13,708	15,921	12,640	3,792
(678)	(810)	(552)	(396)	(653)	(728)	(825)	(542)	(852)
176,502	151,518	146,140	140,587	127,800	110,291	97,311	82,215	70,117
83,112	75,215	67,197	59,933	53,550	47,481	41,558	35,828	31,361
10,335	8,673	8,543	7,650	7,013	6,779	6,699	6,249	5,234
(624)	(776)	(525)	(386)	(630)	(710)	(776)	(519)	(767)
92,823	83,112	75,215	67,197	59,933	53,550	47,481	41,558	35,828
$ 83,679	$ 68,406	$ 70,925	$ 73,390	$ 67,867	$ 56,741	$ 49,830	$ 40,657	$ 34,289

Ten-Year Comparison of

Income & Retained Earnings

(in thousands of dollars)

For the Calendar Year	1963
Sales (on percentage of completion method for long-term contracts)	$377,684
Costs and expenses:	
Materials, payrolls, services and taxes other than U.S. and foreign taxes on income	321,392
Depreciation and amortization	11,227
	332,619
Income from operations	45,065
Income from investments and marketable securities	2,035
Interest expense	(834)
	46,266
U.S. and foreign taxes on income	24,240
	22,026
Income applicable to minority interest	(279)
Extraordinary gain less related taxes	
Net income for the year	21,747
Dividends declared:	
Cash	10,480
Stock—1% in 1958, 4% in 1957 and 1956, 5% in 1954-1955	
	10,480
Remainder added to retained earnings	11,267
Retained earnings at beginning of year	121,898
Transfer to capital stock	
Transfer from pension reserve	
Retained earnings at end of year	$133,165

Statistics

	1963
Income from operations before taxes—% of sales	11.9%
Net income for year—% net worth first of year	10.6%
Orders received—thousands of dollars	$398,990
Unfilled orders—thousands of dollars	$372,666
Shares issued during year: Stock dividend	
Stock split	
Stock sold	
Shares issued end of year	6,183,313
Per share issued (adjusted for stock dividends and stock splits—6,183,313 shares in 1957-1963 inclusive and 5,621,194 in previous years)	
Income for year	$ 3.52
Cash dividends declared	1.72
Stockholders' equity	34.85

1962	1961	1960	1959	1958	1957	1956	1955	1954
$330,574	$319,353	$310,999	$332,071	$365,941	$366,081	$281,485	$233,291	$250,471
277,245	268,721	266,749	291,058	329,221	326,375	244,890	197,006	214,539
10,335	8,673	8,543	7,650	7,013	6,779	6,699	6,249	5,234
287,580	277,394	275,292	298,708	336,234	333,154	251,589	203,255	219,773
42,994	41,959	35,707	33,363	29,707	32,927	29,896	30,036	30,698
2,068	2,283	2,011	1,509	462	386	562	515	737
(952)	(1,120)	(1,218)	(1,218)	(1,218)	(1,238)	(854)	(354)	(580)
44,110	43,122	36,500	33,654	28,951	32,075	29,604	30,197	30,855
23,000	22,580	18,380	17,430	15,640	17,630	15,320	16,520	15,470
21,110	20,542	18,120	16,224	13,311	14,445	14,284	13,677	15,385
(250)	(301)	(303)	(286)	(276)	(239)	(203)	(190)	(173)
					2,250			
20,860	20,241	17,817	15,938	13,035	16,456	14,081	13,487	15,212
9,759	8,849	7,632	6,435	6,107	5,753	5,146	4,901	3,112
				1,993	7,000	8,760	7,470	4,500
9,759	8,849	7,632	6,435	8,100	12,753	13,906	12,371	7,612
11,101	11,392	10,185	9,503	4,935	3,703	175	1,116	7,600
110,797	99,405	89,220	79,717	74,782	71,079	70,984	67,618	60,018
						(80)		
							2,250	
$121,898	$110,797	$ 99,405	$ 89,220	$ 79,717	$ 74,782	$ 71,079	$ 70,984	$ 67,618
13.0%	13.1%	11.5%	10.0%	8.1%	9.0%	10.6%	12.9%	12.2%
10.8%	11.1%	10.4%	9.8%	8.4%	13.0%	12.0%	12.7%	16.1%
$348,907	$361,285	$301,146	$395,540	$236,201	$306,072	$495,257	$317,283	$192,199
$351,360	$333,027	$291,095	$300,948	$237,479	$367,219	$427,228	$213,456	$129,464
			61,220	235,465	205,826	81,677	77,787	74,083
						3,430,436		
					535,148			
6,183,313	6,183,313	6,183,313	6,183,313	6,122,093	5,886,628	5,145,654	1,633,541	1,555,754
$ 3.37	$ 3.27	$ 2.88	$ 2.58	$ 2.11	$ 2.66	$ 2.50	$ 2.40	$ 2.71
1.60	1.45	1.25	1.05	.99	.93	.92	.87	.55
33.03	31.23	29.39	27.74	26.21	25.09	22.44	20.85	18.92

Our Markets ...and How We Serve Them

Rising from a cavity carved into solid rock is a massive arched structure. Within its walls—concrete and steel three to five feet thick—a nuclear reactor releases energy for the New York area. In one year it will convert 450 pounds of uranium and 230 pounds of thorium, which can fit into an average suitcase; an ordinary power plant with the same output burns 10,500 carloads of coal or 5,000 tank cars of oil in the same period. The reactor bears the Babcock & Wilcox nameplate.

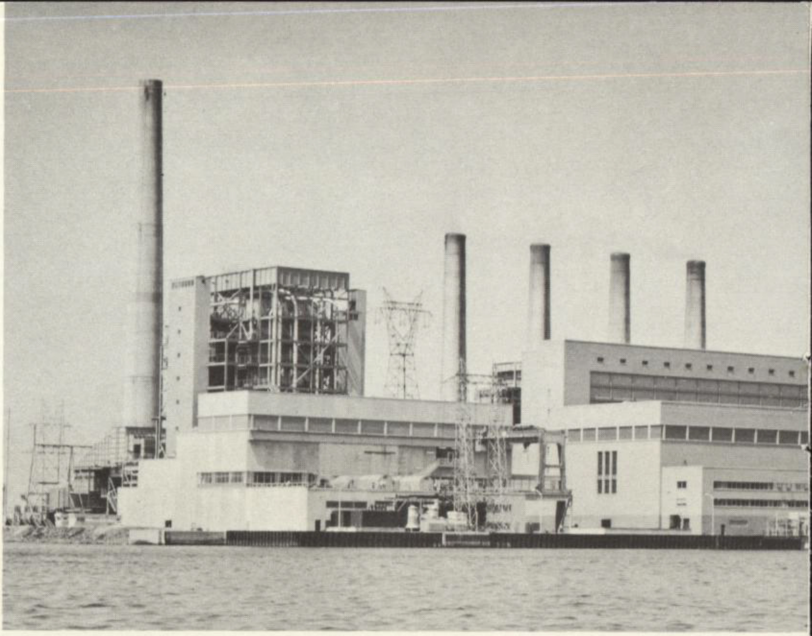
In California a mechanic inspects a set of automobile wheel bearings. After carrying a one and one-half ton burden 50,000 miles, the small rollers still travel freely but snugly inside their raceways. The mechanic puts them back on the axles: they may be good for another 50,000 miles. The raceways are made of Babcock & Wilcox alloy steel tubing.

At 2500 degrees Fahrenheit, the interior of a Pennsylvania steel mill's reheat furnace is an unapproachable no-man's land of searing gases. But its operators can see inside safely—by viewing the screen of a closed-circuit television monitoring system. The system, made by a Babcock & Wilcox subsidiary, Diamond Power Specialty Corporation, has kept its vigil for four years, without blinking an eye.

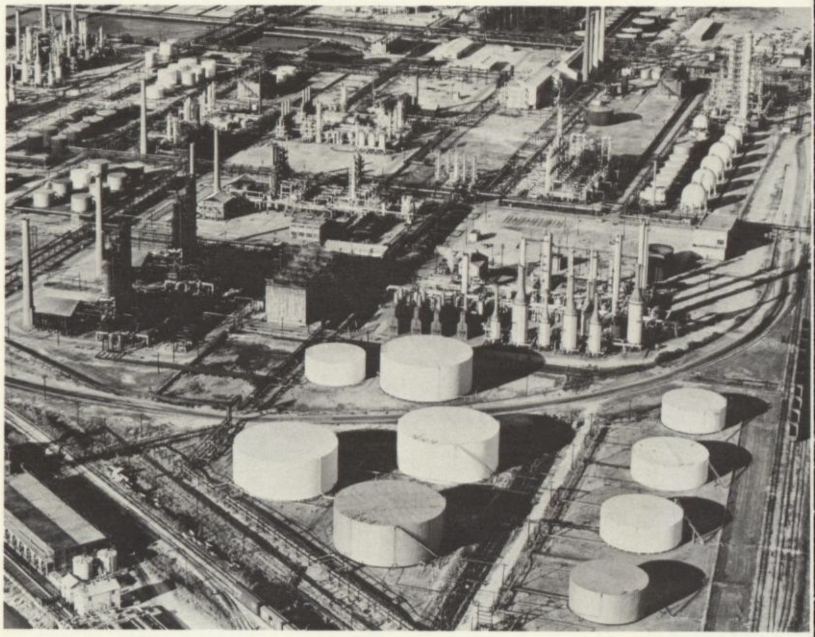
When George Babcock and Stephen Wilcox formed their partnership 97 years ago, they applied their knowledge and experience to fill the need for a safe boiler. Today, B&W is still the leading boiler manufacturer—but the nuclear reactor, the alloy steel tubing, the television monitor and many other major products reflect a continuing development that has made the Babcock & Wilcox of today a highly diversified company.

It is a development that extends the Company's creative engineering and manufacturing skills to an expanding list of new products and processes which anticipate the needs of many industries.

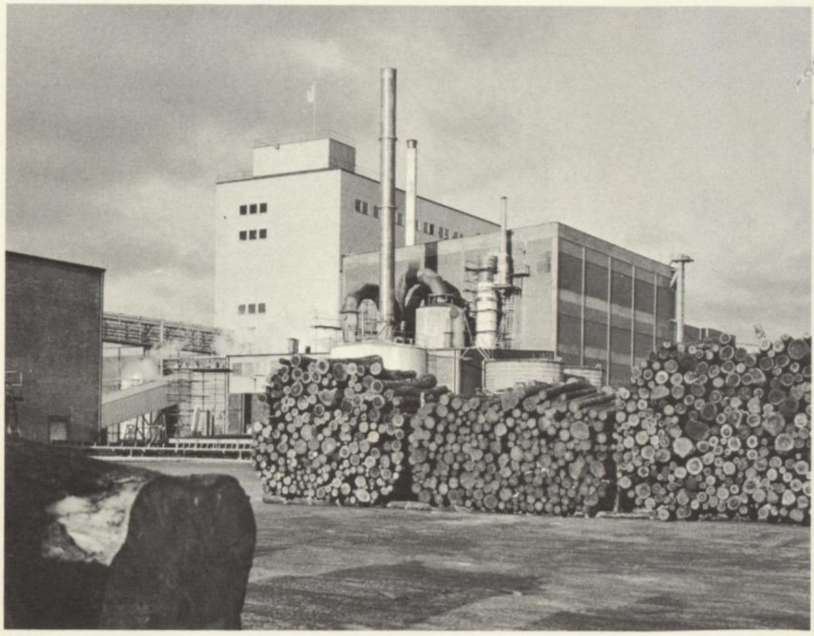
Through careful research, development and investment, B&W's program of diversification is being accelerated. This is reflected in the pages that follow, which describe how B&W's many products are serving its customers in the seven important markets illustrated to the right.



Electric Utilities

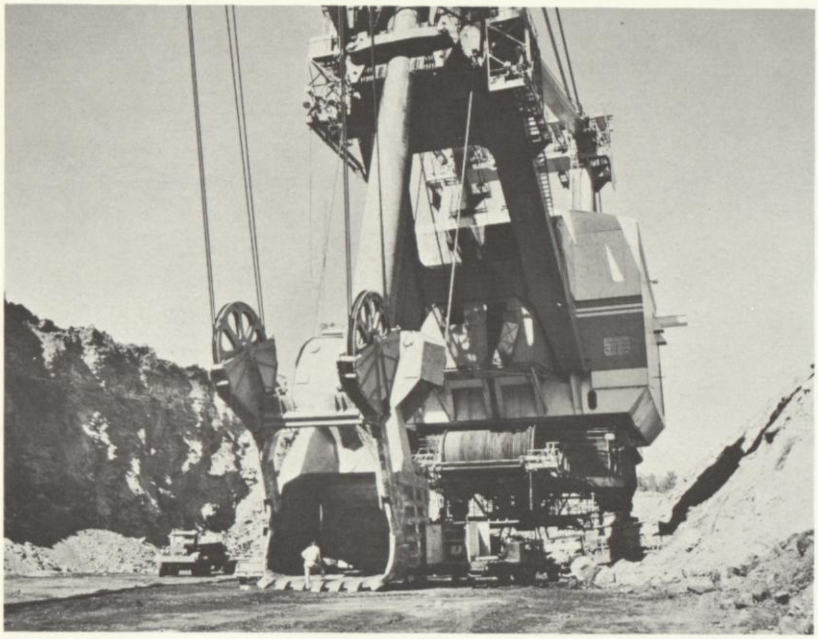


Chemical & Petroleum

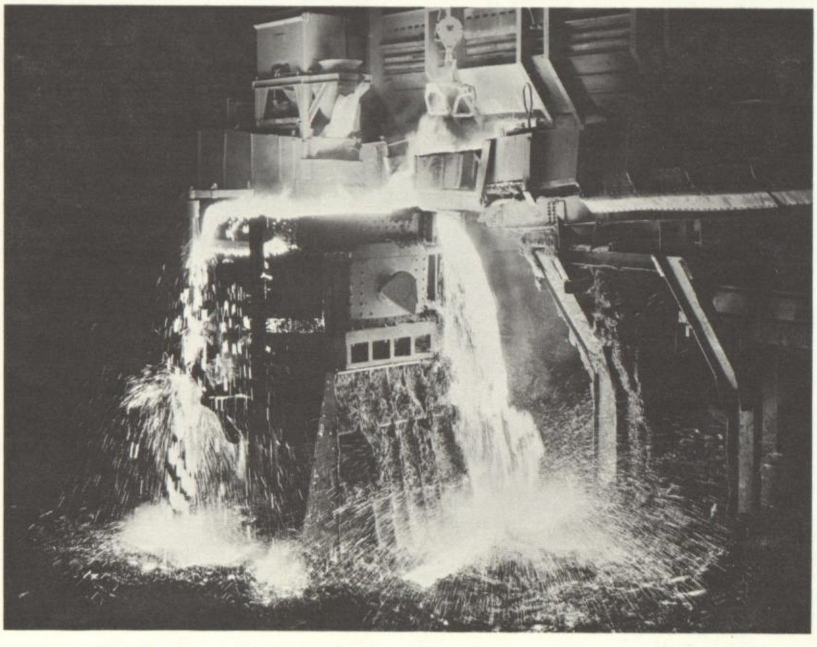


Pulp & Paper

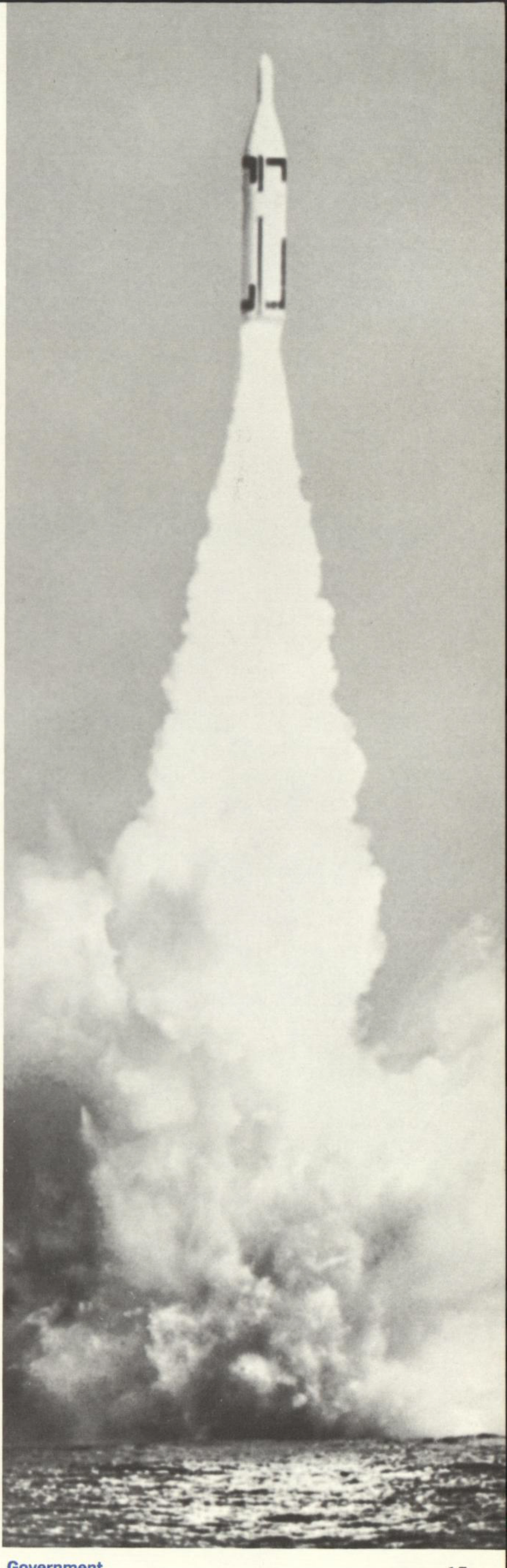
Transportation



Machinery



Primary Metals



Government

Electric Utilities

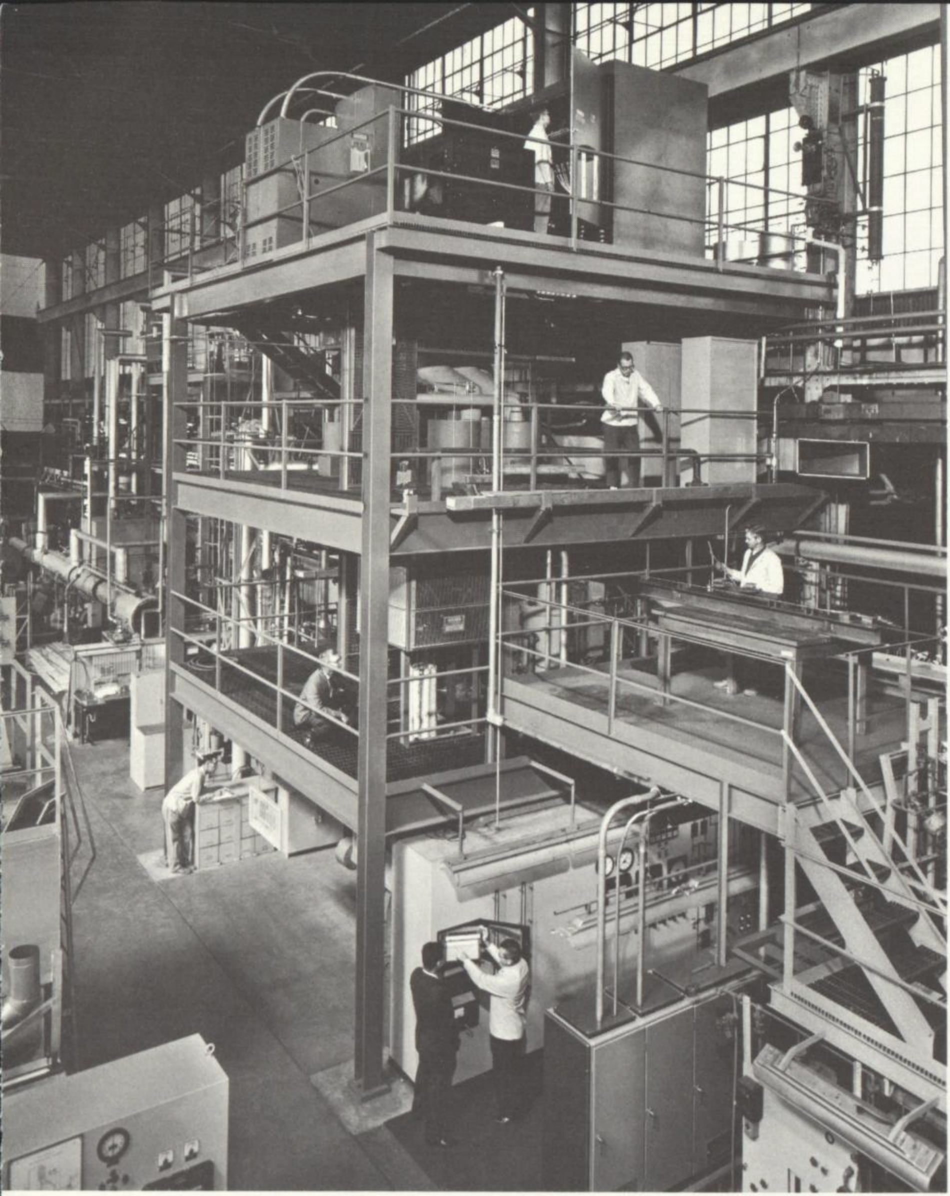
Every 10 years—or less—the use of electricity doubles in the United States. This rapid growth is marked by a strong trend to larger, more efficient power plants to reduce capital and operating costs.

B&W invests many millions of dollars each year in research and development to be able to serve this expanding market. One outstanding result of this research is the B&W Universal Pressure (UP) Boiler System, an advanced high-pressure, high-temperature steam supply system that enables utilities to hold down the cost of electric power. During 1963 alone, ten UP's with a capacity of more than five million kilowatts were purchased. Total UP sales to date: 33 units totaling nearly 15 million kilowatts in capacity. B&W is now designing individual UP boiler units to generate 1,000,000 kilowatts or more.

Company engineers are also making a key contribution to power station automation. Tangible examples: advanced Bailey Meter electronic control systems and performance computers provide maximum control reliability for large power plants; fully automatic boiler cleaning systems developed by Diamond Power reduce boiler operating costs and maintain boiler efficiency.

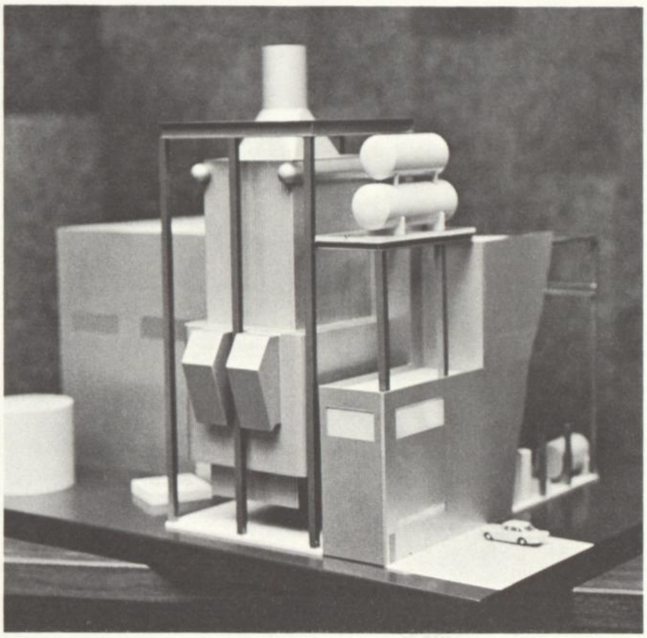
Meanwhile, the Company's nuclear capability and experience continue to grow. Consolidated Edison Company of New York's 275,000 kilowatt Indian Point plant, with its B&W reactor, achieved full power output in 1963 and has now chalked up almost a billion kilowatt hours. Nuclear power costs with B&W's advanced reactor design are now competitive with cost of power from fossil fuels in 17 states.

In Lynchburg, Va., B&W's Nuclear Development Center—a new laboratory and test reactor facility to study advanced fuel cycles—began partial operation in 1963. And in Mount Vernon, Ind., a new B&W facility has been constructed which is ideally situated for the shipment of large reactor vessels. Acquisition in 1963 of the W. F. & John Barnes Company of Rockford, Ill. added production skills and facilities of special value to B&W's nuclear work.



◀ *Unique test equipment for precise determination of heat transfer limits in nuclear reactor tubes has been designed and built by B&W scientists and engineers at the Company's Research Center. Results of these experiments will make it possible to build more efficient and less expensive nuclear steam generators.*

Model of new Ready Reserve power system introduced by B&W in 1963. This specially designed system can be installed for approximately $60 per kilowatt—substantially below cost of peaking systems heretofore available. ▶



◀ *Consolidated Edison's Indian Point station, Buchanan, N.Y., equipped with B&W reactor system, reflects the solid experience behind the Company's ability to build atomic power plants of any practical capacity.*

Chemical & Petroleum

Fast recovery of capital investment is vital in the dynamic chemical and petroleum industries. To meet this requirement, B&W engineers developed the Carbon Monoxide (CO) boiler—a boiler system that utilizes refinery gases previously wasted. The resulting economy enables these units to pay for themselves in only a few years.

Major producers need increasingly larger facilities. For a refinery that went on stream in 1963, B&W provided an unusually large CO boiler capable of generating 450,000 pounds of steam per hour. This big unit will save the customer more than $750,000 a year and recover its cost in less than five years.

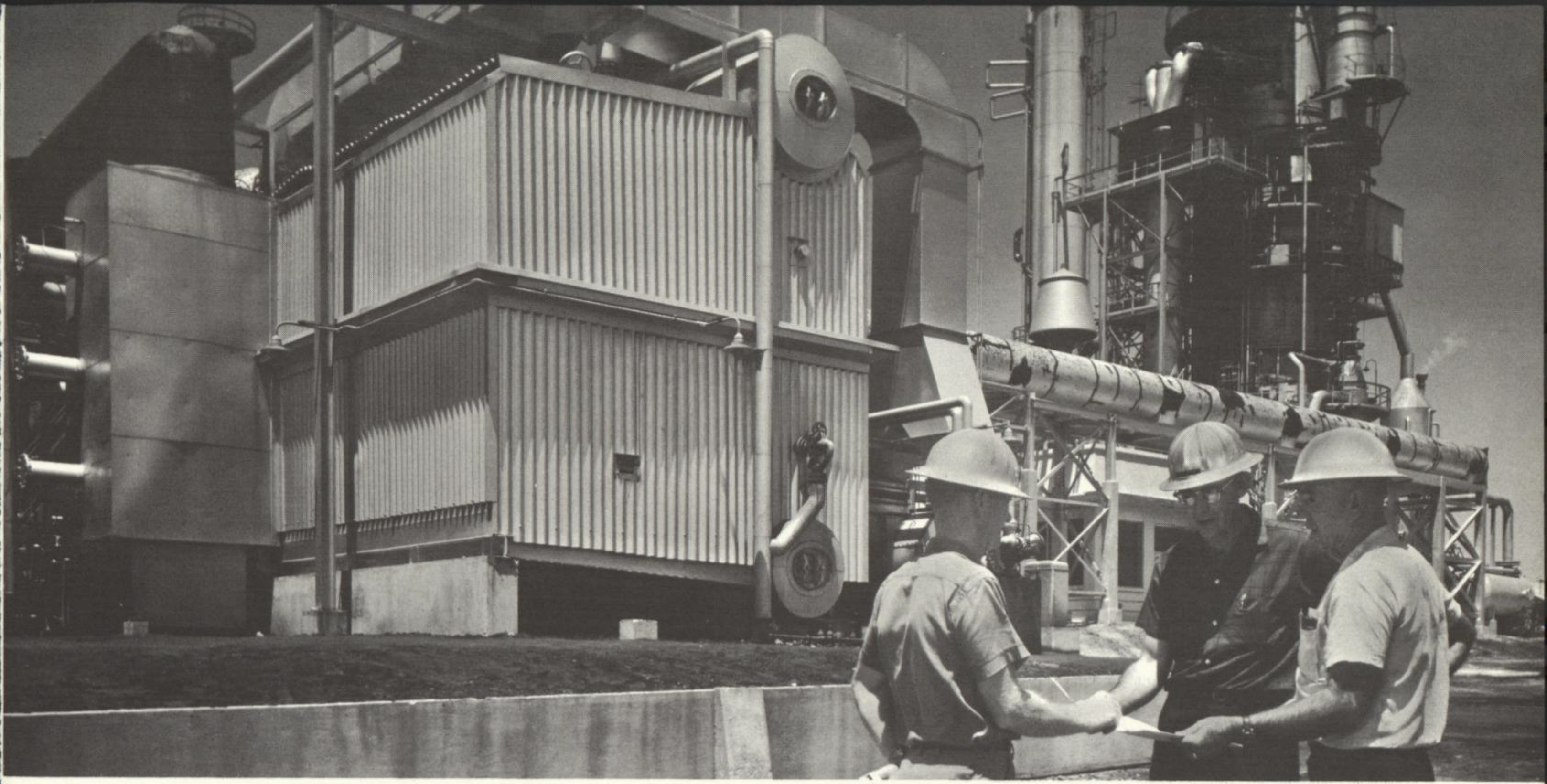
To fill other needs, B&W introduced a new package-type CO boiler. It is completely shop assembled in the smaller sizes for ready installation.

The strong trend to automation in the process industries is supported by Bailey Meter's development of new performance monitoring, computing and control equipment. These modern electronic systems offer increased efficiency, and represent a significant step in B&W's program of diversification.

The many ways in which the chemical and petroleum industries are broadening their use of other B&W products include:

- Oil- and gas-fired packaged boilers that supply process steam, heat or power.
- Heavy pressure vessels used either as steam accumulators or for storage of high pressure gas.
- Studded tubing that improves heat-exchanger performance by providing greater heat-transfer surface.
- Steel pressure tubing and welding fittings applied to heat exchangers and piping systems.
- Refractories for linings of petroleum heaters, cracking units and chemical process furnaces.

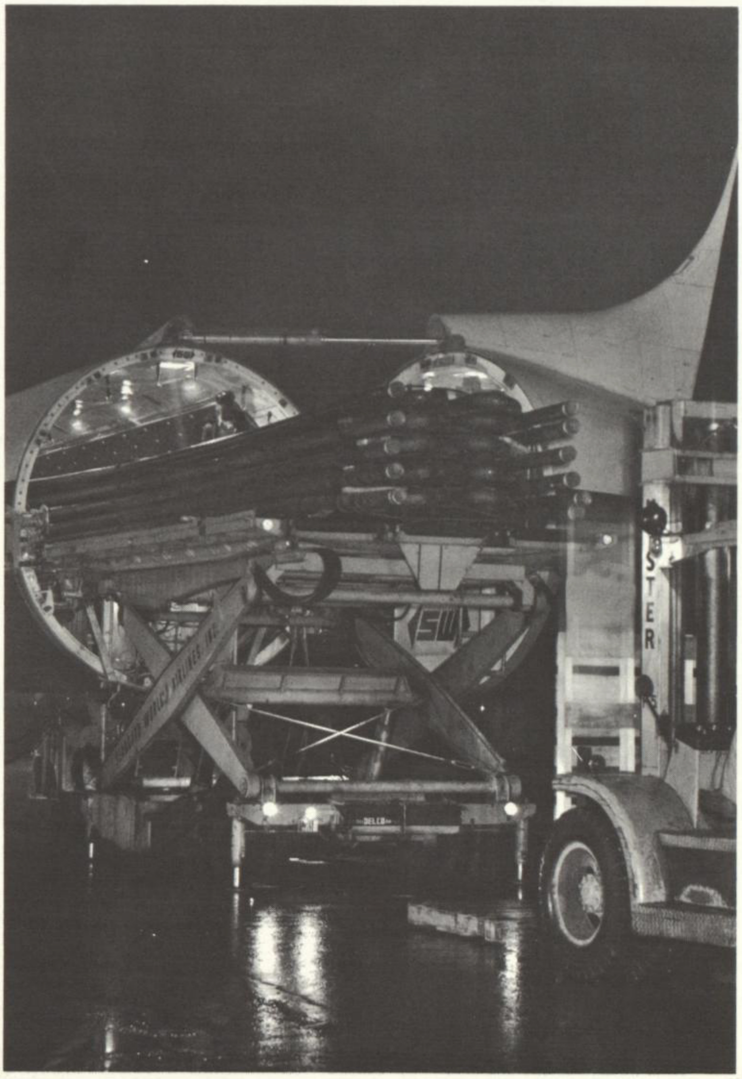
Bailey Meter performance monitoring and automatic control equipment for refineries supports the trend to automation in the process industries. Bailey equipment increases reliability and efficiency by regulating and programming start-and-stop operations. ▶



▲

New package-type CO boiler at a Southwest refinery utilizes gases that were previously wasted. B&W waste-heat boilers usually pay for themselves in a few years.

Air shipment of heater coils to a refinery in Pakistan typifies B&W's prompt response to customer needs. Chemical and petroleum industries are finding increased use for many types of B&W tubular products. ▶



Pulp & Paper

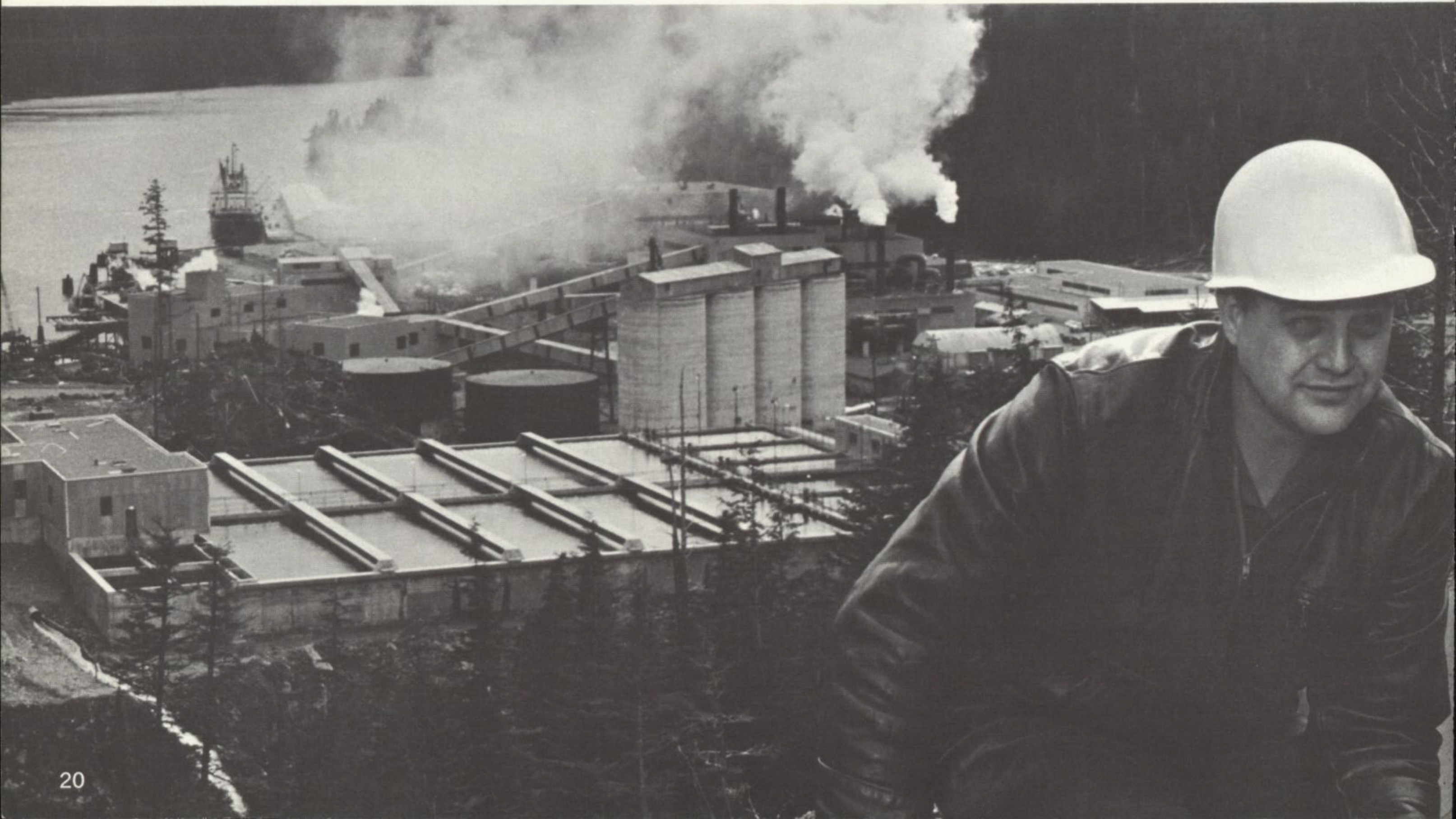
B&W supplies the pulp and paper industry with tubing, controls and power and recovery boilers. It pioneered the use of modern chemical recovery boiler units that process waste liquor and recover the heat and valuable chemicals used in the pulping process. In so doing, these units reduce air and stream pollution in the surrounding community, and do a better job at less cost. Ten of these units were purchased from B&W in 1963.

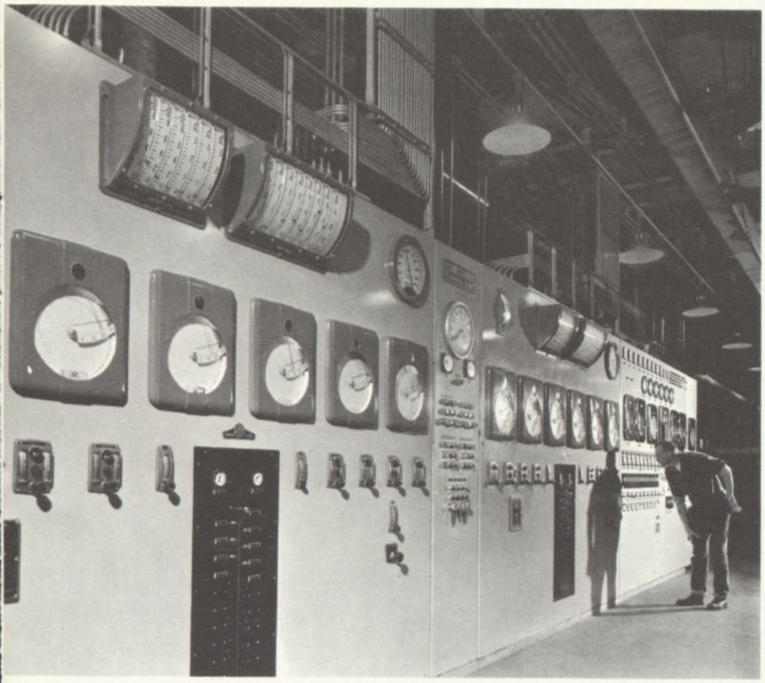
With the growth of the pulp and paper industry, the size and performance requirements of these chemical recovery units are increasing. As a result, B&W's 1963 orders included two significant milestones, one of which is among the world's largest Kraft recovery boilers, able to handle the waste liquor from a 900-ton-per-day pulping operation. The other is the highest steam-temperature Kraft unit, to operate at 925 degrees Fahrenheit.

Babcock & Wilcox is stimulating revival and enlargement of the sulfite pulp industry throughout the world by promoting the patented magnesia base-pulping recovery process. This technique permits our customers to pulp a much wider variety of wood species, substantially improve pulp quality and recover approximately 90 per cent of the chemicals used in the pulping process.

B&W is making many other outstanding contributions to this progressive industry:

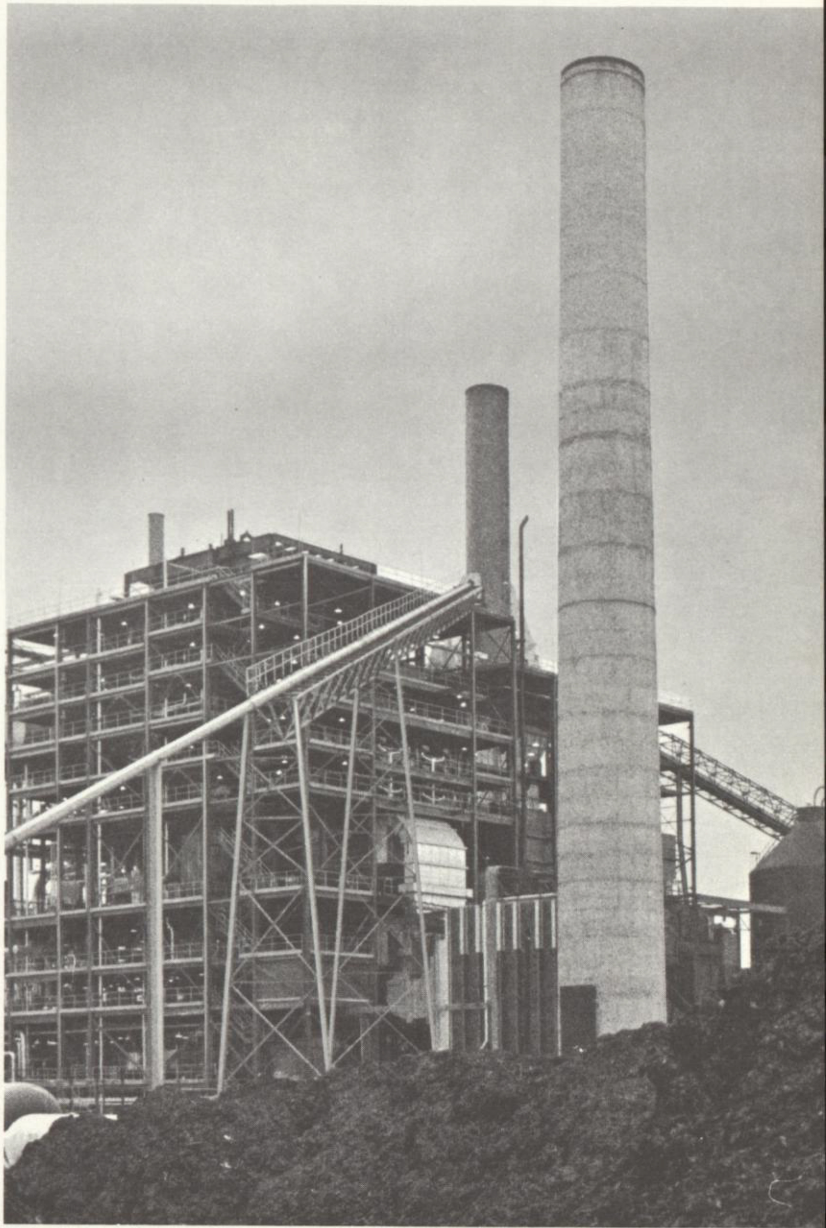
- A new Diamond Power slurry spray system reduces maintenance costs and keeps efficiency high. Using existing soot-blowers, it sprays chemicals on boiler tubes, turning harmful glass-like slag into porous ash that is easily removed.
- A new Venturi scrubber, together with the recovery boiler systems, substantially reduces air and stream pollution.
- A centralized information system for control of paper machines and pulp mill equipment has been engineered and supplied by Bailey Meter to a large paper company. The Bailey system provides all the information needed for future computer control of the entire plant.





◀ *Bailey Meter automation equipment and instrumentation are used in the industry to achieve higher efficiencies by controlling boiler operations and various stages of paper making.*

B&W recovery boiler installed at a Southern pulp and paper mill. These boilers are meeting the industry's need for units to operate at higher pressures and temperatures, and provide greater production at lower cost. ▶



◀ *Pulp and paper mills, such as this one in Alaska, constitute a growing market for B&W recovery systems, boilers, refractories, tubing and controls.*

Transportation

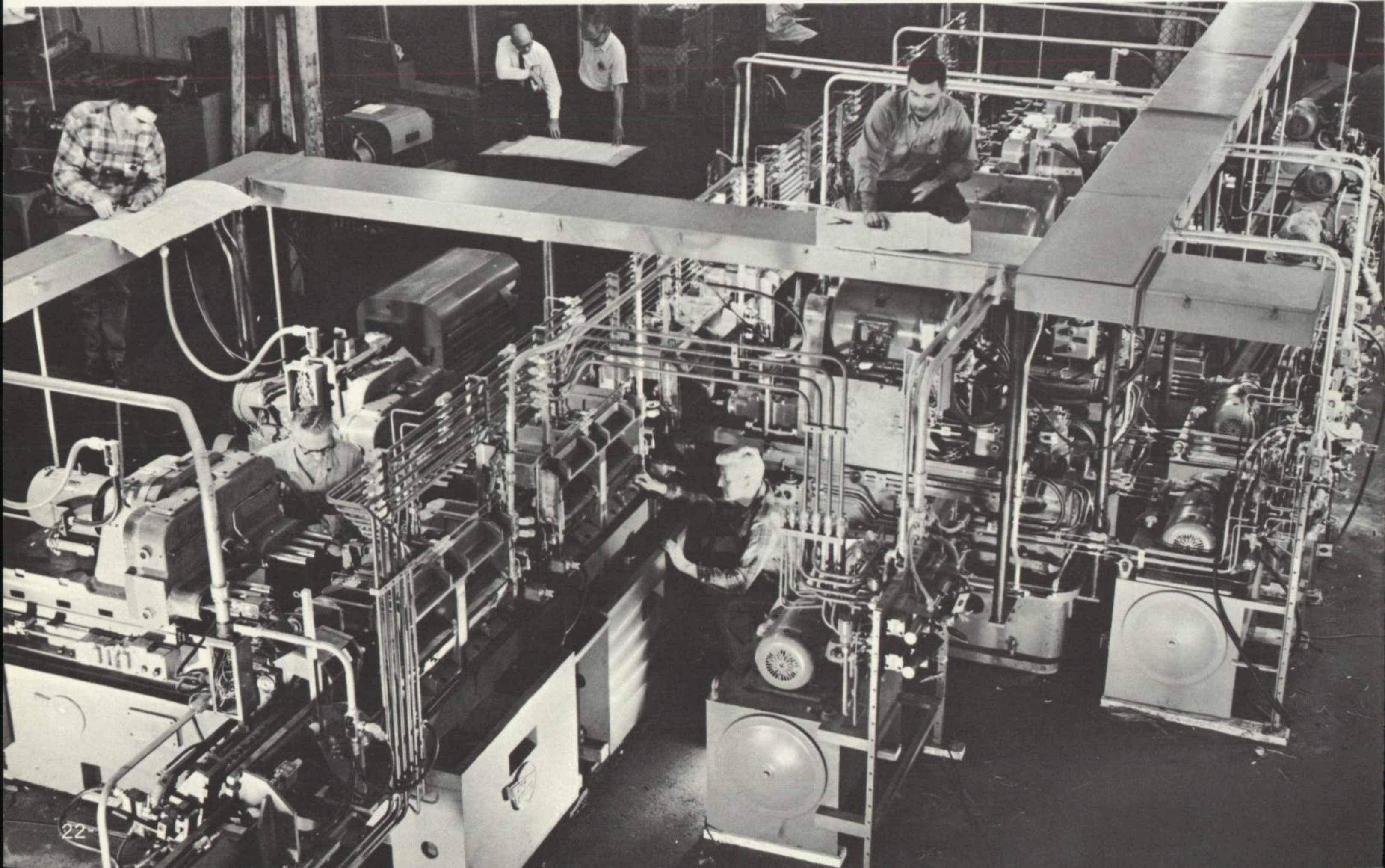
Large quantities of B&W steel tubing go into automobiles, trucks, tractors and other vehicles, as parts of anti-friction bearings, automatic transmissions, axles and other assemblies. The aircraft industry also makes extensive use of B&W tubing in bearings, landing gear, hydraulic lines and structural elements. To better serve its customers, B&W has recently installed a vacuum degassing system costing more than $1,000,000, which is producing ultra-high-quality steel to further increase the service life of such products.

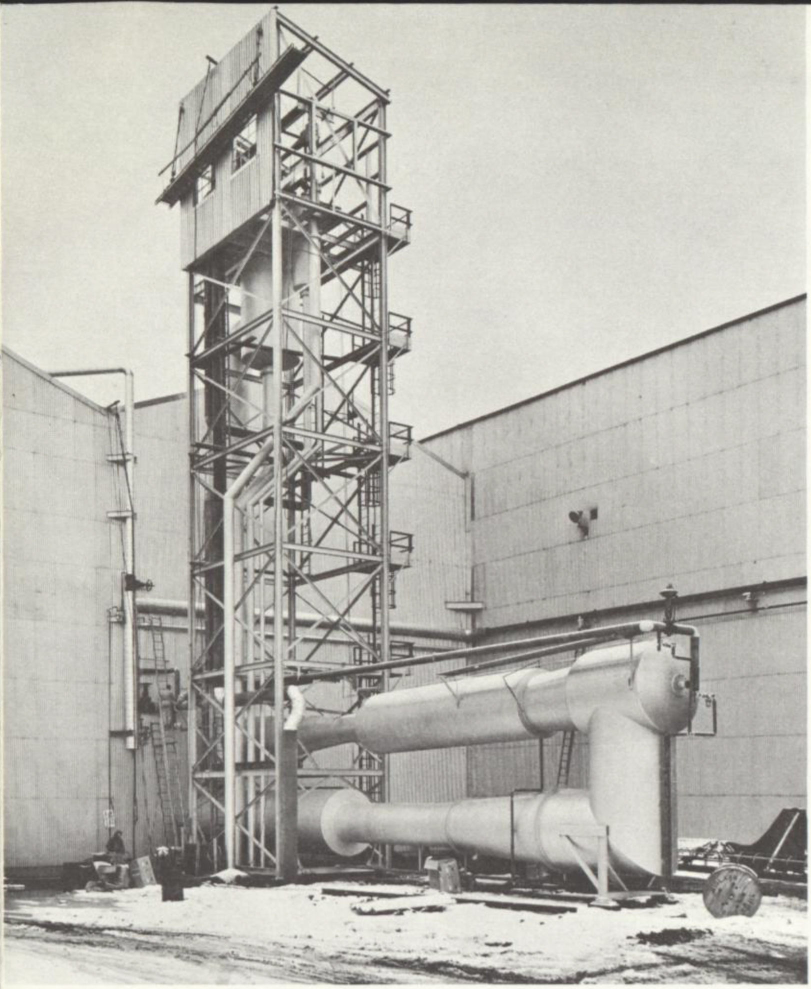
Automated production machinery for automobile manufacture is the principal product of the W. F. & John Barnes organization acquired by B&W in 1963. These complex transfer machines are used to mass-produce automatically items such as steering gear housings, pistons, connecting rods, engine blocks and heads.

There is a growing international interest in large, high-speed nuclear ships. Late in 1963, B&W's advanced marine reactor was selected as the basic design for the first European nuclear merchant ship which will be built in West Germany. This new design is remarkably compact, requiring only one-fourth as much space per unit of power output as earlier reactors.

The world's first nuclear merchant ship—the N.S. Savannah—has voyaged 30,000 miles to date, and her B&W reactor will take her another 300,000 without refueling.

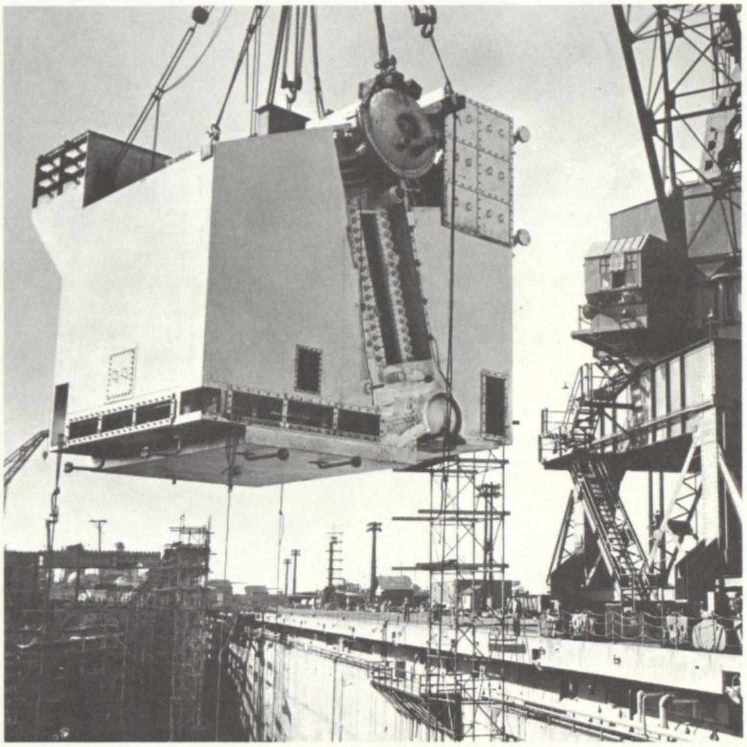
In an important step toward the automated operation of ships, Bailey Meter has designed and supplied the burner control system for a Great Lakes freighter. The new Bailey control system will permit automatic operation of burners while the ship is underway.





◀ *New vacuum degassing unit (shown during installation) represents a substantial investment by B & W to provide ultra-high-quality steel for customers in the automotive, aircraft and other industries.*

B & W marine boiler is lowered into the engine room of one of the U.S. Navy's newest vessels. Company has long tradition of supplying powerful, compact units for both naval and merchant ships. ▶



◀ *Automated production machinery for automobile manufacture is the principal product of the Company's newly acquired W. F. & John Barnes Works.*

Machinery

The modern heat treating furnace is an indispensable production tool in the machinery industry. Its precise control of temperature is made possible largely by B&W insulating firebrick, which also contributes to reduction in fuel consumption. In addition, the high purity of B&W insulating firebrick protects high-temperature alloys against scale formation during heat treating under special atmospheres.

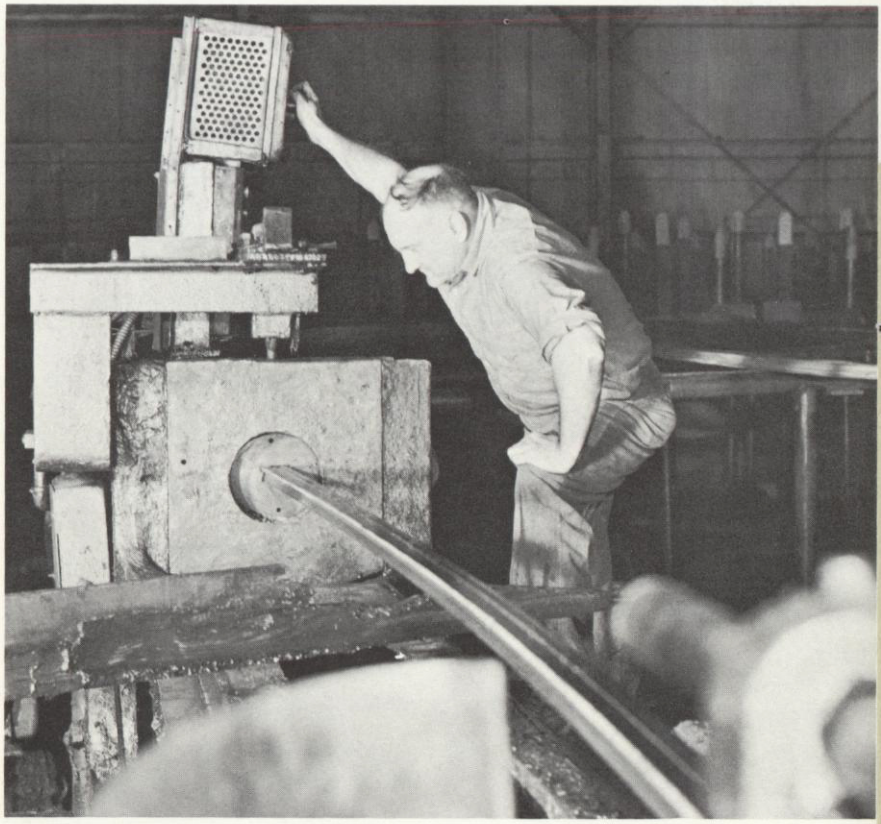
B&W recently introduced two new high-temperature insulating firebrick to satisfy other needs that are developing such as in linings for furnaces used to produce new "exotic" metals.

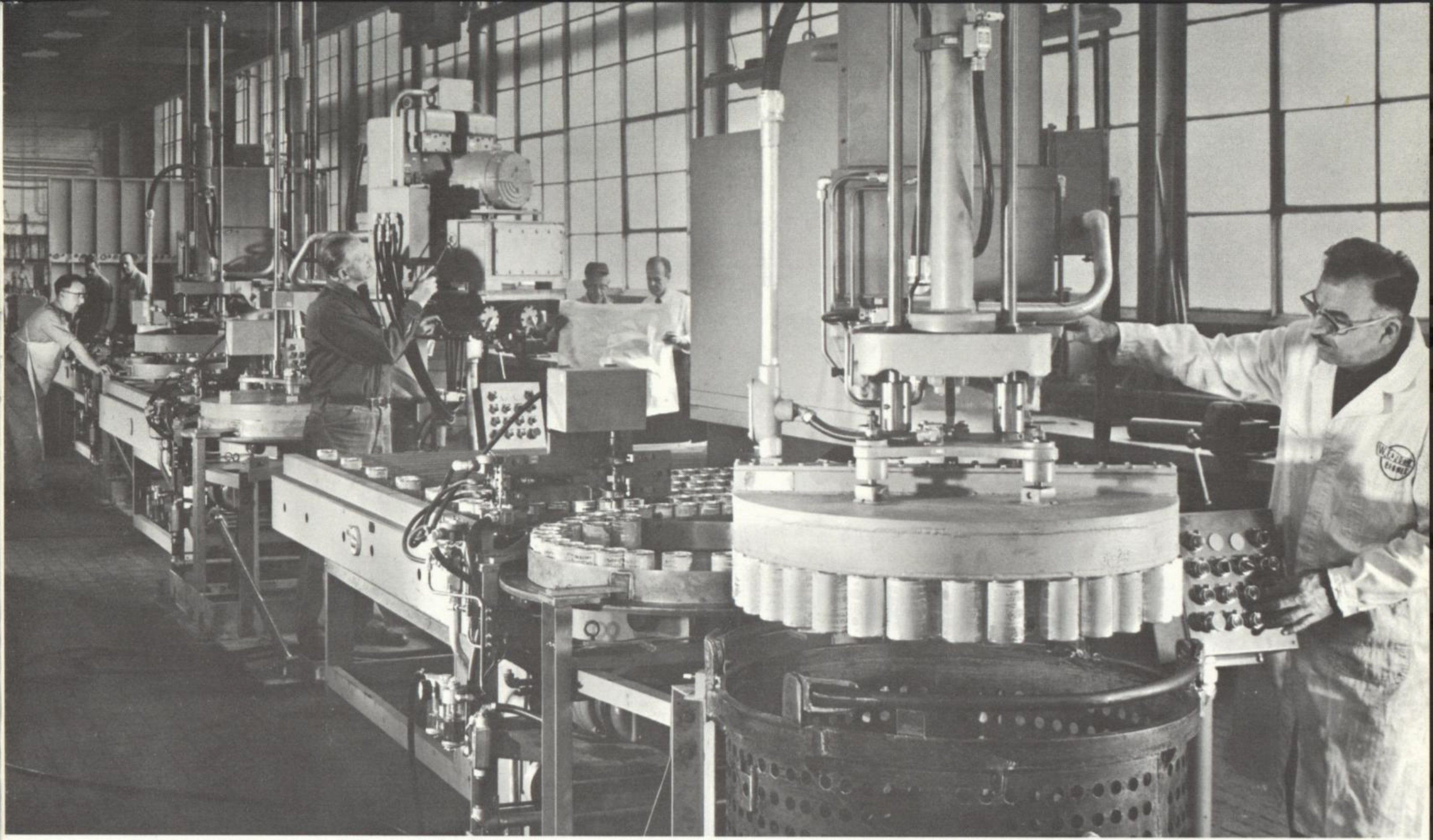
B&W tubular steel products are widely used in the machinery industry as parts for bearings, and in household appliances, machine tools and specialized structures. B&W mechanical tubing is used widely in tractors and mobile machines for construction and farming.

New needs of customers in the machinery industry are being filled by B&W engineering and manufacturing skills in many other ways. These are typical:

- Metal and plastic die-casting requires high pressures. B&W steel "bottles", sealed at both ends by spinning, are filling a growing need for low-cost, high-pressure accumulators.
- Today, earth-moving shovels range up to 20 stories high. B&W manufactures the big dipper handles—some as much as 150 feet long, 7 feet in diameter and weighing 130 tons—and other components for these giant machines.
- Closed-circuit television is becoming increasingly necessary in many machining operations. Diamond Power's TV is used to view continuously and control large machine tools; its miniaturized TV camera provides better weld inspection of tubes and other closed vessels.

B&W's cold-drawing process has broadened the range of steel extrusions, providing greater design flexibility and eliminating further finishing of extruded parts. The Company's tubes are used for bearings, appliances, specialized structures and machine tools. ▶





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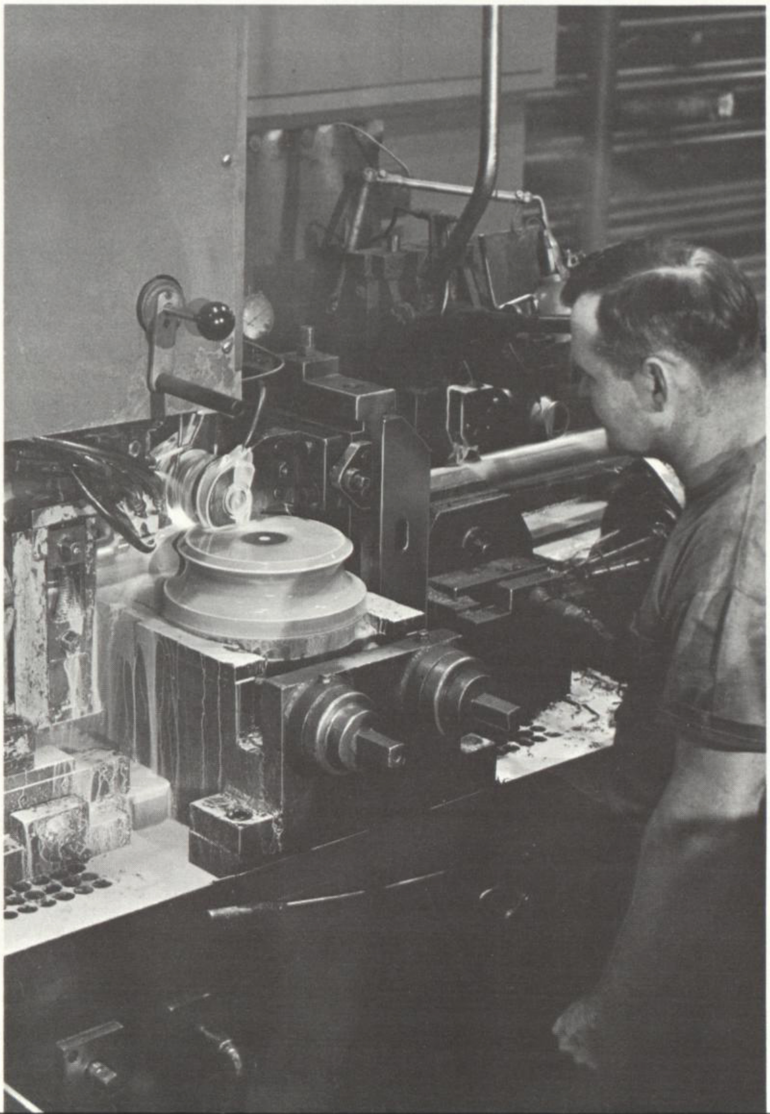
Equipment for the canning industry is typical of large machinery produced for general industry by W. F. & John Barnes Works. The new Works also manufactures a line of machine tools for drilling, reaming and honing.

B&W electric resistance welded tubing in production at Alliance, Ohio. The close tolerances and fine finish of B&W tubing enable customers to reduce costs. For example, use of B&W cylinder tubing eliminates costly interior machining and polishing. ▶



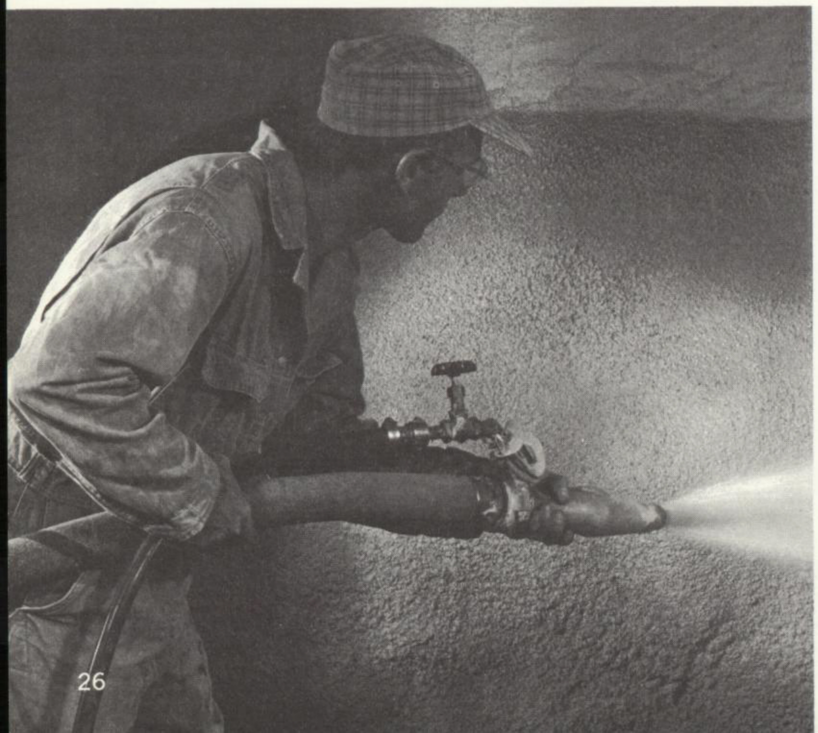
Primary Metals

Strong foreign and domestic competition is intensifying a drive to cut costs in the nation's steel industry—and opening new opportunities for the specialized products and skills of B&W:

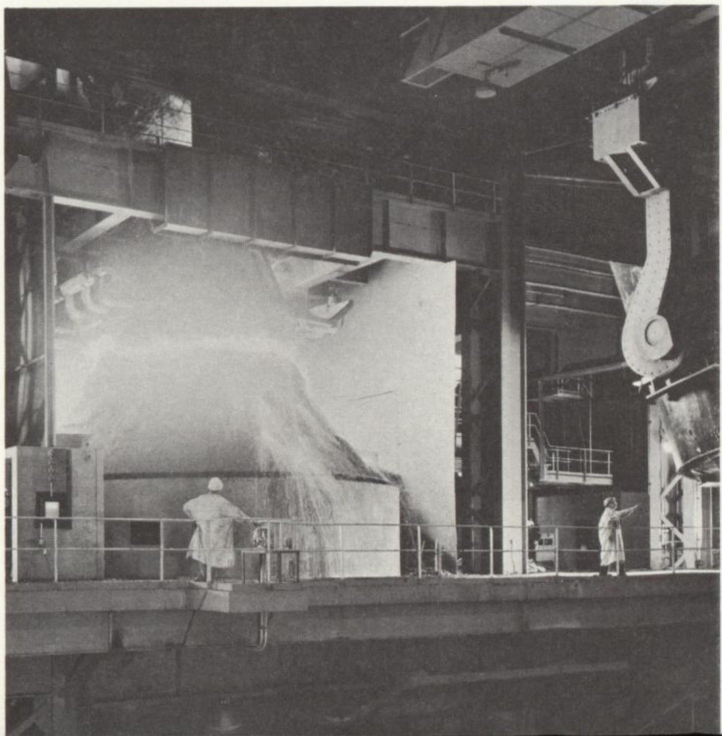
- Expansion of the basic oxygen furnace process is widening the market for B&W's membrane-wall furnace hood, which absorbs heat from furnace gases to generate auxiliary steam.
- Sales of B&W waste-heat boilers are being stimulated by the growing use of oxygen to increase the capacity of open-hearth furnaces. The world's largest boiler of this type was ordered from B&W and will go into operation in 1964.
- The first installation of B&W's new design for a pulverized coal injection system for blast furnaces will go into operation early in 1964. It will permit coal to replace 20 to 40 per cent of the expensive coke used in the reducing process.
- Installation of a Bailey Meter power demand control will enable a large new steel mill to save over $400,000 per year on its operating costs.

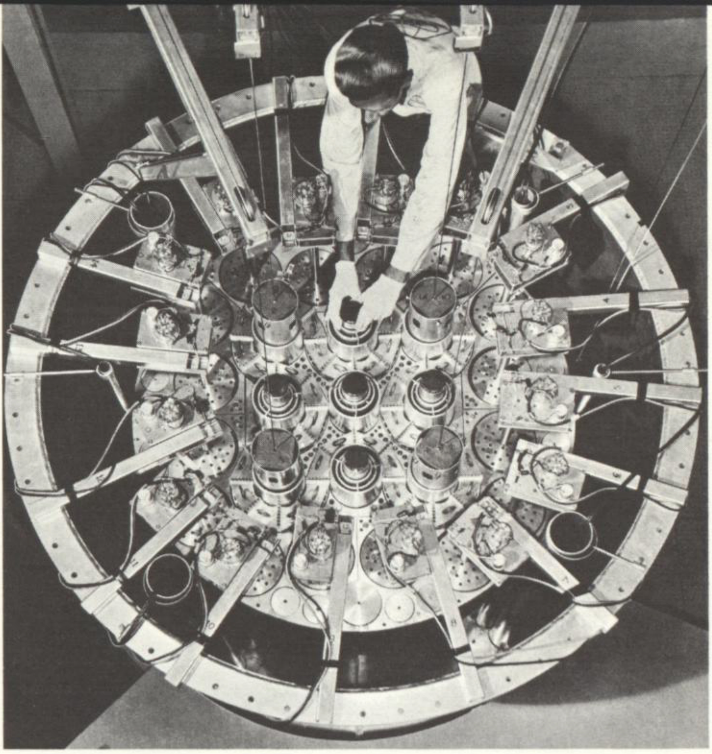
The nation's first commercial continuous steel casting plant has been operating successfully for more than a year at Roanoke, Va. It was designed and built by B&W which has pioneered development of continuous casting. ▲

B&W high temperature refractory can be applied quickly to blast furnaces by spray gun which greatly reduces downtime. This B&W refractory resists carbon monoxide attack and mechanical erosion. Other B&W refractories are used in vacuum degassing and pressure casting to withstand higher temperatures, high thermal shock and molten metal penetration. ▼



B&W's water-cooled membrane wall hood being used in oxygen furnace steel making. The hood reduces costs by absorbing heat from high-temperature gas and generating steam for auxiliary power. Five companies had ordered nine B&W hoods by the end of 1963. ▼





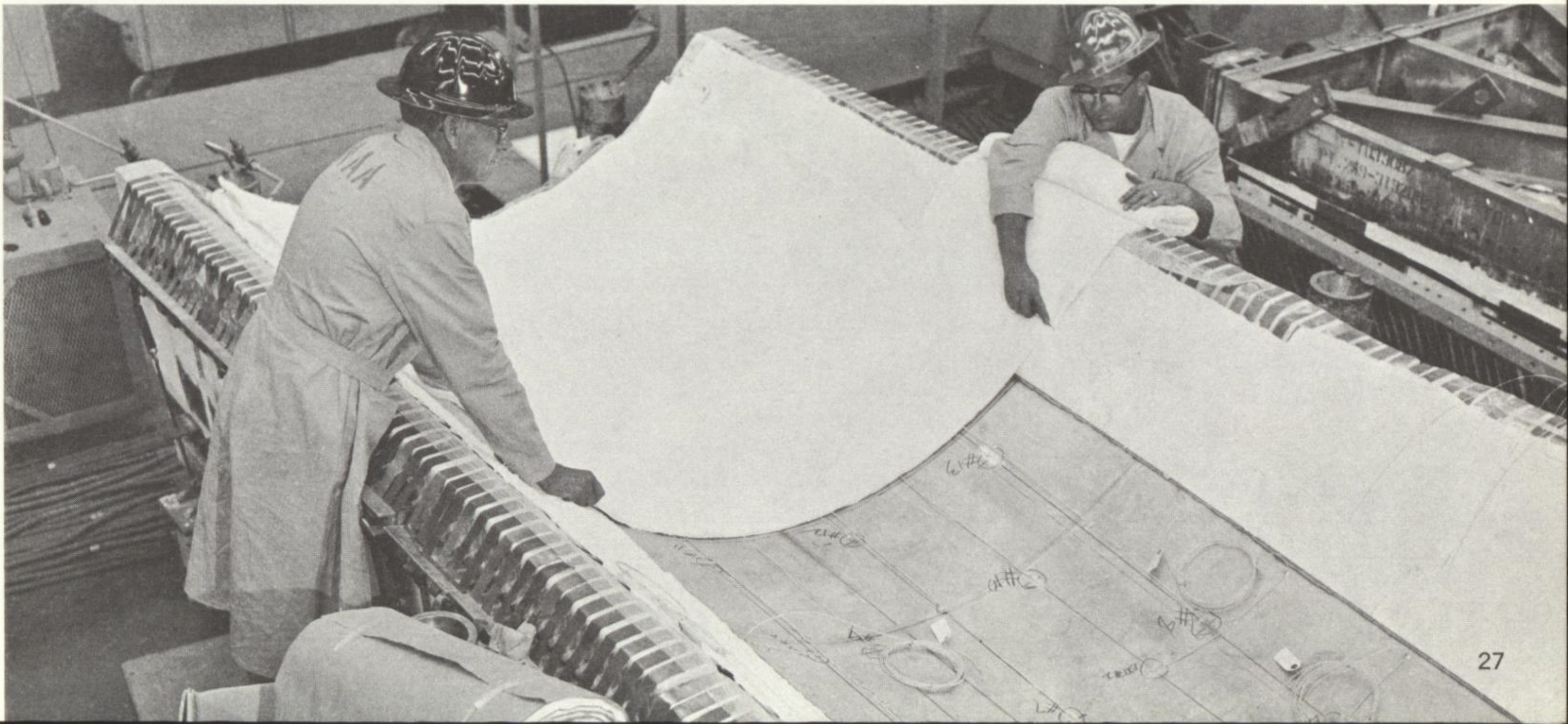
Government

B&W makes a most significant contribution to the nation through the use of its unique engineering and production skills on national scientific and defense projects. Typical current examples:

- One of the largest solid-state electronic control systems ever designed will be supplied to the Atomic Energy Commission by Bailey Meter for a large nuclear reactor. To date, Bailey has contributed to more than 60 major marine and stationary nuclear projects.
- The Company is a prime supplier of components for the nation's nuclear navy, thus extending B&W's traditional role as a major supplier of equipment for propulsion of naval ships.
- Design of the world's most powerful test reactor was completed by B&W nuclear engineers in 1963. It is now being installed at the A.E.C.'s National Reactor Testing Station in Idaho.
- B&W scientists are intensively studying better ways to use thorium, the nation's most plentiful natural nuclear resource. This investigation stems from B&W's successful experience in designing and fabricating the thorium core for Consolidated Edison's Indian Point reactor.

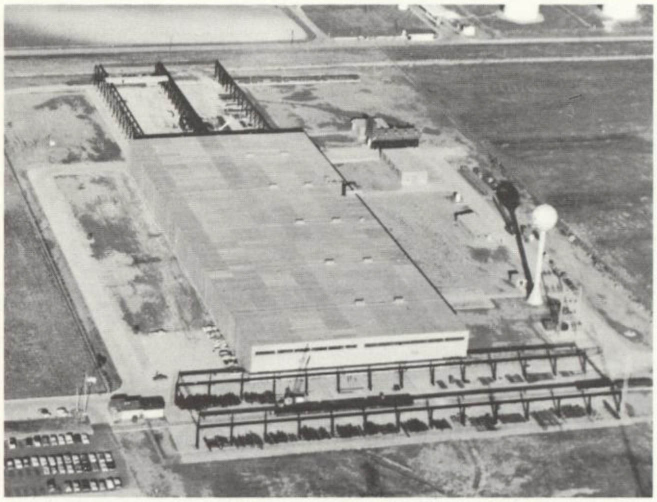
Full-scale model of nuclear core, made by B&W, will guide construction of the Advanced Test Reactor at National Reactor Testing Station in Idaho. Basic reactor design was completed by B&W in 1963 as the major phase of an Atomic Energy Commission contract. Reactor will be world's largest of its type. ▲

B&W Kaowool, an alumina-silica ceramic fiber, is used in aircraft manufacture to provide heat dispersal when joining strong, light honeycombed airframes. Kaowool has also been specified for insulation of liquid-oxygen in the Saturn I rocket. ▼

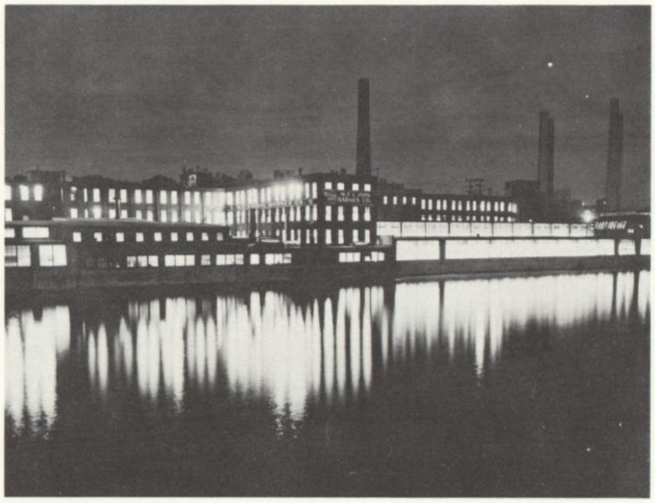


Capital Investment for Market Expansion

B&W spent nearly $50,000,000 on capital facilities in 1962-63. These five representative projects accounted for more than 60 per cent of the expenditures.

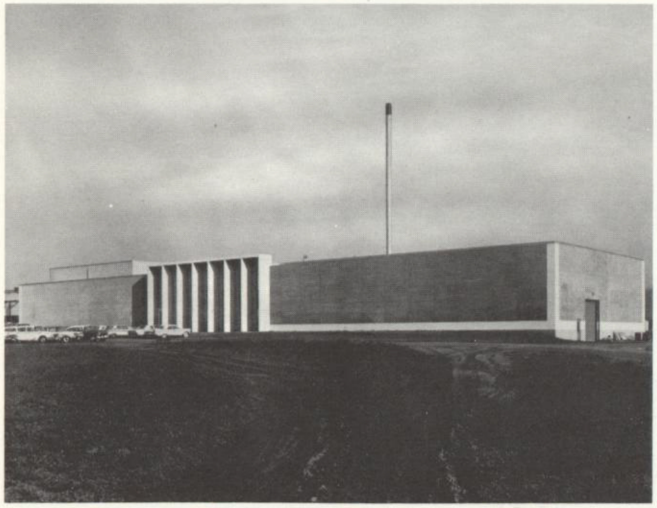


Boiler Division
Boiler Works, Mount Vernon, Ind.

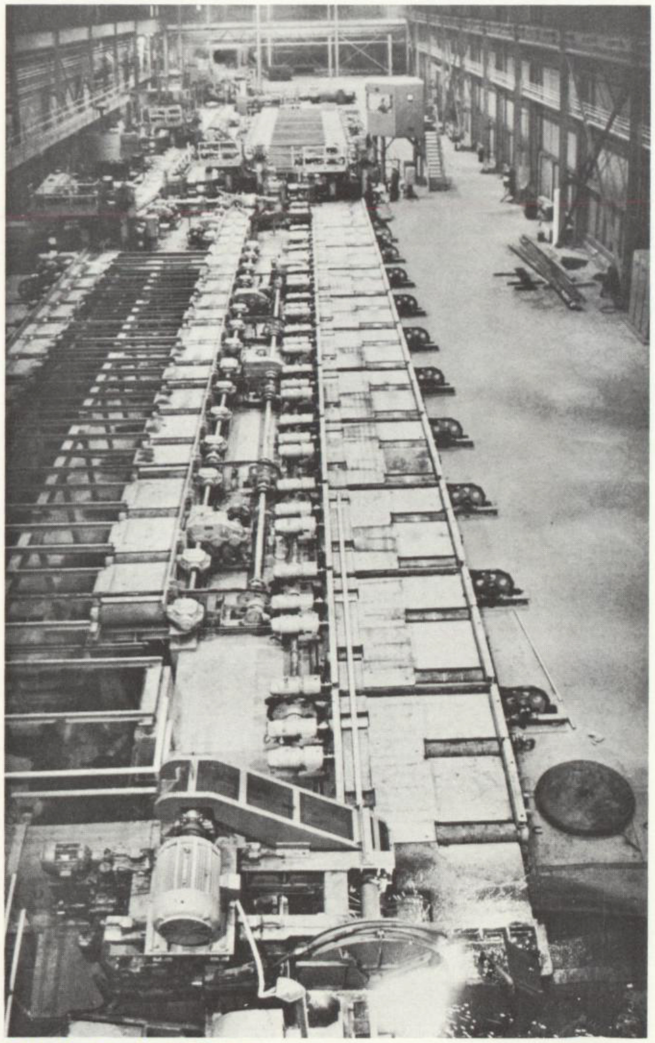


Boiler Division
W. F. & John Barnes Works, Rockford, Ill.

Bailey Meter Company
Office and Engineering Center, Wickliffe, Ohio



Atomic Energy and Research and Development Divisions
Nuclear Development Center, Lynchburg, Va.



Tubular Products Division
New Steel and Bar Mill, Koppel, Pa.

The Babcock & Wilcox Company

General Offices, 161 East 42nd Street, New York, N.Y. 10017 • Sales Offices in principal cities

FACILITIES

Atomic Energy Division
Lynchburg, Va.

Boiler Division
Barberton, Ohio
Brunswick, Ga.
Lynchburg, Va.
Mount Vernon, Ind.
Paris, Tex.
Rockford, Ill.
West Point, Miss.
Wilmington, N.C.
Engineering Branch Offices
  Cleveland, Ohio
  St. Petersburg, Fla.
  Scranton, Pa.

Refractories Division
Augusta, Ga.

Research and Development Division
Alliance, Ohio
Lynchburg, Va.

Tubular Products Division
Alliance, Ohio
Beaver Falls, Pa.
Milwaukee, Wis.

Bailey Meter Company
Cleveland, Ohio
Wickliffe, Ohio
Montreal, Que., Canada

Diamond Power Specialty Corporation
Lancaster, Ohio
Southampton, Woolston, England

A. M. Lockett & Co., Limited
New Orleans, La.

PRODUCTS

Steam Generating Equipment
For Power, Industrial Process
  and Heating, and for Marine Service
    Water Tube Boilers
    Water Cooled Furnaces
    Superheaters and Reheaters
    Economizers and Airheaters
    Pulverized Coal Systems
    Cyclone Furnaces, Stokers
    Oil, Gas and Multi-Fuel Burners
Metering and Control Apparatus
Power Plant Information Systems
  and Performance Computers
Cleaning Systems
  for heat transfer surfaces
Water Gauges

Atomic Energy
Complete Nuclear Power Systems
  and Components
    Reactors, Cores and Vessels
    Fuel Elements
    Heat Exchangers
    Controls and Instrumentation
    Control Rod Drives
    Reactor Mechanisms
    Liquid Level Gauges
Test Reactors
Critical Experiments
Research and Economic Studies

Tubular Products
Stainless, Alloy, or Carbon Steel
  Seamless and Welded Tubes and
    Pipe for all types of Pressure
    and Mechanical Applications
  Extrusions—
    Tubular and Solid Shapes
  Welding Fittings and Flanges
  Seamless Rolled Rings

Refractories
For Industrial Furnaces
    Insulating Firebrick
    Special Firebrick
    Silicon Carbide
    Plastics, Mortars, Castables,
      Ramming Mixes, Calcines
    Ceramic Fiber

Special Equipment
Hollow Forgings for steam piping
  and other uses
Alloy Castings
Pressure Vessels
Heat Exchangers
Systems for Process Automation
Recovery Processes
  for the Pulp Industry
Pulverizers for Cement Materials,
  Rock Products and Ores
Industrial (Closed Circuit) Television
Stud Tensioners
Automated Production Machinery

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